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Distribution of Trace Metals in a Warm Water Release Impoundment

J. Nix
University of Arkansas, Fayetteville

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DISTRIBUTION of TRACE METALS
in a
WARM WATER RELEASE IMPOUNDMENT

by

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By

J. Nix

Principal Investigator

Arkansas Water Resources Research Center

University of Arkansas

Fayetteville, Arkansas

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ABSTRACT

DISTRIBUTION OF TRACE METALS IN A WARM WATER RELEASE IMPOUNDMENT

A water quality study of the DeGray Reservoir, Arkansas, was conducted beginning immediately following the beginning of impoundment through the first year in which the reservoir was operated near normal pool elevation. DeGray Reservoir is the first major dam in Arkansas to be equipped with upper level release capabilities. Temperature, dissolved oxygen, and turbidity were measured in situ at stations located over the old river channel. Samples were taken from selected levels within the water column at each station and analyzed for the following parameters: pH, sodium, potassium, calcium, magnesium, nitrate, phosphate, sulfate, chloride, fluoride, alkalinity, COD, iron, manganese, copper, cobalt, nickel, lead, zinc, cadmium, and silver. The heavy metals were determined in both the particualte fraction (retained by a 0.45 micron filter) and the soluble fraction (passed by a 0.45 micron filter).

The results of these studies have shown that DeGray Reservoir becomes stratified in the early spring and that oxygen depletion occurs under the thermocline. Turnover or mixing of the reservoir was observed to occur during two years by a series of underflows of water carrying fresh oxygen into the hypolimnion. Density currents, laden with silt were observed near the top of the thermocline and apparently are the origin of metalimnic dissolved oxygen minimum.

The total quantity of both iron and manganese in DeGray Reservoir were found to cycle in response to oxygen depletion in the hypolimnion. Although some vague trends in other heavy metals were observed, it was difficult to determine if seasonal fluctuation of these metals was occuring.

A comparison of the water discharged from the reservoir with a pre-impoundment water quality study indicate that the upper level release structure is maintaining a temperature regeim in the river which is similar to that present before impoundment. The concentration of other constituents were observed to be significantly different from the river prior to impoundment.

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Tom Goodwin
J. W. Rotton
Lee Kuyper
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TABLE OF CONTENTS

LIST OF TABLES

List of Tables (cont.)

LIST OF FIGURES

Figures (cont.)

Figures (cont.)

INTRODUCTION

The DeGray Dam on the Caddo River, Arkansas, was the first major project in Arkansas to be equipped with upper level release. In addition to the upper level release feature, the project includes a re-regulating dam located approximately 3 miles downstream from the main dam. The re-regulating dam provides regulation for power releases from the reservoir and a pool for pump-back.

This report describes the findings of a three-year water quality study of the DeGray Reservoir. The period of the project extends from the closure of the tunnel which diverted the river during construction (August 1969), through one full year of operation near normal pool elevation (June 1972).

Upon completion of the project described in this report, a second OWRR project was approved which provided for the continuation of the basic program initiated during the first three years of impoundment. At the completion of this second project, a six-year summary of water quality of the DeGray Reservoir will be prepared.

Description of DeGray Project:

Pertinent information on the DeGray Project is given in Table 1 and Figure 1.

The DeGray Dam has been constructed on the Caddo River approximately seven miles north of Arkadelphia, Arkansas.

The axis of the dam is at river mile 7.4. This multi-purpose project will provide flood control, power generation, recreation, water supply, water quality control, and flow agumentation for navigation of the lower Ouachita River system.

The Caddo River drains a section of the Ouachita Mountains in west-central Arkansas. The drainage area is characterized by forested hills and narrow valleys. Slopes are often very steep and rocky.

Geologically, the headwaters of the Caddo River is predominently Womble Shale and Blakely Sandstone. Down stream from Caddo Gap, Arkansas, the river enters an area of Hot Springs Sandstone and Stanley Shale. As the river continues its general eastward course, it dissects outcroppings of the Jackfork Sandstone at several locations. Near the damsite, the river enters an alluvium area which persists until the confluence of the Caddo River with the Ouachita River. Runoff from the alluvial section enters the Caddo River downstream from DeGray Dam (1).

DeGray Reservoir has a maximum depth of approximately 58 meters at normal pool elevation. The reservoir extends in a west to northwest direction for approximately 25 miles. The lower one half of the impoundment is characterized by relatively large open water, while the upper half of the reservoir is more narrow. A map of DeGray Reservoir is shown in Figure 1.

The DeGray project is unique in that it is the first major upper level release dam in Arkansas. Other unique features of the project are a smaller re-regulating dam

located approximately 3 miles downstream from the main dam, and a reversible turbin-pump which has the capability of pumping water from the re-regulating pool back into the main reservoir. The pump-back facility has only been operated for the purposes of testing the equipment.

The impoundment of the Caddo River by the DeGray Dam was begun on August 8, 1969. By May 11, 1970, the elevation of the pool was at 119 meters (msl) giving a maximum depth of approximately 55 meters near the dam. On May 12, 1970, the gates were opened to lower the pool for tree topping. By mid-June, the elevation of the pool was at 113 meters (msl) and remained at this level through mid-October. During this period, the bottom of the gates were set at elevation 113 meters (msl) so that inflow approximately equalled outflow plus evaporation. In late October the elevation of the reservoir was increased to approximately 114 meters and remained roughly at that level until the gates were closed on December 31, 1970. From January 1971 through June 1971, the elevation of the reservoir increased to approximately 119 meters (msl). Modest releases were begun in August 1971. Reservoir elevation remained essentially stable until heavy rains in December 1971 caused the level to increase to 123 meters (msl). Between January 1972 and June 1972 elevation fluctuated between 122 meters and 124 meters (msl). The filling history of DeGray Reservoir is summarized in Figure 2.

Trees were removed from the reservoir area between the elevation of 110 meters and 124 meters (msl). For a distance of approximately one mile above the dam, trees were removed from the entire basin. Trees located in the zone

of the reservoir below elevation 110 meters and which extended above elevation 114 meters were topped from boats while the reservoir was at elevation 113 meters.

The multi-level intake structure at DeGray is a four sided tower with openings in each face. A trash rack panel (6.4 meters x 6.4 meters) is positioned at the level from which outflow is to be withdrawn. The remainder of each opening is closed by two bulkhead panels. An interchange of trash racks and bulkhead panels permits water to be drawn off at 4 levels as the reservoir rises and falls (2).

METHODS AND MATERIALS

Sampling and Station Location:

Sampling stations were selected in order to provide a representative picture of the reservoir during filling and after stabilization of the system. Figure 1 shows the location of all stations used in this study. As the reservoir filled some of the sampling stations were abandoned and new ones established in the upper region of the reservoir. After the reservoir reached essentially normal pool elevation, only stations number 1, 7, 10, 12, 13, and 14 were sampled regularly.

In all cases reservoir stations were located directly over the old river channel. Location of the stations was accomplished by traversing the reservoir between two designated points and identifying the deepest portion of the transect using a Simrad recording sounder. Station 19, located immediately downstream from the regulating dam were also sampled after releases were begun.

Water samples were taken using a Van Dorn type water sampler constructed of plastic with rubber closures. The pH of each sample was determined immediately upon collection. The pH of the samples was determined colorimetrically using bromthymol blue and phenol red. A 100 ml aliquot of the sample was filtered through a pre-washed 0.45 micron Millipore filter within one minute after collection. The filtrate was acidified with 8 drops of concentrated hydrochloric acid and reserved for analysis of heavy metals. The filter containing the particular matter was also reserved for analysis of heavy metals. A one liter raw water sample was taken and reserved for analysis of other parameters. Both the acidified filtrate and raw water sample were stored in polyethylene bottles.

Analytical Methods:

Temperature and dissolved oxygen were measured *in situ* at two meter intervals using a Yellow Springs dissolved oxygen analyser. The instrument was standardized immediately prior to each field trip using the Winkler method described in Standard Methods (3).

Turbidity was measured *in situ* at two meter intervals using a G.M. turbidity meter which consisted of a submersible photocell and light source attached to a deck readout system. The data taken is expressed as percent transmittance for a 22 cm light path. The instrument was calibrated by setting one hundred percent transmittance in air.

The analytical methods used in this study are summarized below:

Alkalinity was determined by titration with 0.02 N sulfuric acid as described in Standard Methods (3). Chloride was determined using an Orion chloride electrode in conjunction with an Orion Model 407 specific ion meter (4). Fluoride was determined using an Orion fluoride electrode in conjunction with an Orion Model 407 specific ion meter. The pH range encountered in this study did not necessitate the use of a buffer for this determination (5). Sulfate was determined spectrophotometrically using the Barium Chloranilate method adapted from Bertolacini and Barney. The lower limit of this method is 2.0 ppm (6). Nitrate was determined using the polarographically as described by Frazier (7).

Ortho Phosphate was determined by a chloroform-butanol extraction of sample after treatment with ammonium molybdate with subsequent spectrophotomethric measurement of the phosphomolybdate complex at 310 mu as summarized by Nix (8). It should be noted that COD determined in this study is not a true COD as defined in Standard Methods. A modified procedure which provided for digestion of the samples at boiling water temperatures was used in order to allow comparison of data with an earlier study. The details of the COD method used are given by Nix (8).

The concentration of the metals sodium, potassium, and magnesium was measured by direct aspiration of the raw water sample into the flame of an atomic absorption spectrometer. The instrument settings were those recommended by the manufacturer (9).

Calcium was determined in the raw water sample using atomic absorption spectroscopy after pre-treatment of the sample with lanthanum nitrate and hydrochloric acid as described by Lee (10).

The concentration of the following heavy metals was determined in both the acidified filtrate and the material retained by the filter as described by Nix and Goodwin (11): iron, manganese, copper, cobalt, nickel, lead, and zinc. The method consisted of chelation of the heavy metals with diethyldithiocarbamate after adjustment of the pH, then extraction of the metals into methyl isobutyl ketone. Specific conditions are described by Nix and Goodwin which permit the simultaneous extraction of these metals. In addition to the metals mentioned, it was determined that silver and cadmium were also extracted under the same conditions. The extract was aspirated into the flame of a Perkin Elmer Model 303 atomic absorption spectrometer. Although detection limits varied from metal to metal, this method allowed the detection of most of these metals in concentrations under 0.010 ppm. Concentrations of cadmium and silver on the order of 0.001 ppm could easily be detected while metals such as nickel and lead were considerably less sensative. Heavy metals retained by the filter were determined in a sample prepared by leaching the filter with 1:1 hydrochloric acid. The contribution by the filter was determined by leaching a washed filter by the same method. It was found that the leaching of the filter with hydrochloric acid contributed considerable copper. Metals determined in the filtrate are denoted by the subscript 'f' (Mn_f) and those determined on material retained by the filter are denoted by the subscript 'p' (Mn_p).

RESULTS AND DISCUSSION

The temperature profiles measured on four selected dates are given in Tables 2, 3, 4, 5, and 6. As can be seen from these data, there is very little variation in the temperature gradient of the water column in the down stream and upstream sections of the reservoir. That is, water at selected depths have essentially the same temperature at all stations. For this reason, a presentation of all temperature data for the reservoir is summarized in Table 7 by presenting only data taken from Station No. 1.

The dissolved oxygen profiles of the reservoir are presented in Figure 3 through Figure 45. These data are expressed as iso-concentration lines on a triangle where the vertical line represents the dam (with elevation given in meters, msl); the diagonal line represents the bottom of the reservoir in the old river channel; and the horizontal line represents the surface of the reservoir. These figures were drawn by locating the dissolved oxygen data (taken at two meter intervals) at the position on the triangle which corresponds to the depth of the reservoir at each station, then drawing the iso-concentration lines at intricate values for the dissolved oxygen concentration. Although the expression of the bottom of the reservoir as a straight line is actually not correct, the addition of the true river gradient on this elevation axis does not add significantly to the value of this type of data expression in identifying water masses within the reservoir.

The results of the measurement of turbidity within the reservoir are given in Figures 46 through 63. The measurements were made at two meter intervals and are expressed on each graph as a solid line drawn to best represent the individual data. The unit for turbidity is percent transmittance for a 22 cm light path.

The results of the analysis of samples taken from DeGray Reservoir are given in Tables 8 through 43. The data for each sampling are grouped together and presented in the following order: pH, alkalinity, calcium magnesium sodium, potassium, nitrate, ortho-phosphate, chloride, fluoride, sulfate, COD, iron (filtered and particulate), manganese (filtered and particulate), copper (filtered and particulate), lead (filtered and particulate), zinc (filtered and particulate), cadmium (filtered and particulate), and silver (filtered and particulate). Heavy metal data are given beginning in 1971 while the data for the more common water quality parameters begin in May 1970.

Temperature:

As shown in Table 7, DeGray Reservoir has been observed to be essentially homothermous during a very short period, usually from mid-January to early February. Weak but significant stratification begins to develop by mid-February to mid-March. By April the epilimnic layer is well defined. Hypolimnic temperatures remain near 7° C during the entire period of stratification. Maximum surface temperatures near 29° C have been observed with the top of the thermocline being well defined at a depth of 5 to 7 meters. The bottom of the thermocline (defined as the level below which the temperature drop is less than one degree per two meters) is

at a depth of approximately 12 meters.

Stratification persists until mixing occurs during the period from October through mid-January. As would be expected mixing begins in the upper reaches of the reservoir and progresses in a downstream direction. As will be discussed later, the mixing (overturn) of the lower section of the reservoir may occur when cold winter rains underflow the reservoir.

Figure 68 presents a comparison of the water temperature immediately downstream from DeGray Reservoir and data collected at three stations on the river near the dam site prior to the impoundment of the reservoir. Although the pre-impoundment study (12) indicated that there were temperature fluctuations due to climatic conditions, the general trend of the data taken after the reservoir had become operational is very close to the range of values observed during the pre-impoundment study. During the period of the post-impoundment study, the intake structure of DeGray was set at its upper level which draws water from essentially the surface of the reservoir.

Assuming that the reservoir remained at normal pool elevation, adjustment of the intake structure to its lowest position would allow water at a temperature of near 8° C to be released from the impoundment. Releases from this lower position would probably cause a thickening of the epilimnic layer during the course of the summer. Such thickening could cause the temperature of water released from the reservoir to gradually warm during the late summer

period, thus converting from a cold water release to a warm water release.

Dissolved Oxygen:

As described under the Methods Section of this report, the dissolved oxygen data are presented as iso-concentration lines on a triangle which represents a cross sectional view of the reservoir. It should be noted that the elevation scale on the left of each profile changes as the reservoir fills.

The first dissolved oxygen profile of DeGray Reservoir was made on September 26, 1969 (Figure 3), approximately 50 days after the beginning of impoundment. At this stage, the maximum depth of the reservoir was only 14 meters. As shown in Figure 3, considerable oxygen depletion had occurred in the lower two-thirds of the reservoir. Even on the surface, dissolved oxygen concentrations of less than 3 ppm were found. The dissolved oxygen concentrations were observed to gradually increase to above saturation in the upstream of the pool.

The extensive oxygen depletion observed in the lower section of the reservoir is probably due to the introduction of organic matter and bacteria during the initial flooding of the basin. At this point in the filling history, the ratio of water volume to surface area flooded would be a minimum. Such extensive oxygen depletion during the initial filling should be expected if the ratio of water volume to flooded area is relatively low. Fish stocked in the lower section of the reservoir during this period were observed to die or remain in a state of stress (13). Stocking activities in the upper section of the reservoir appeared

to be successful (13).

On October 18, 1969, the second dissolved oxygen profile of reservoir pool was determined. As shown in Figure 4 an apparent underflow of oxygen-bearing water was occurring. Such an underflow would be expected if the temperature of the inflowing water dropped below the temperature of the reservoir pool. By November 8, 1969 (Figure 5), the oxygen-rich inflow had completely underflown the reservoir. During the same period, considerable oxygenation of surface water had occurred. This combination of underflow and oxygenation of surface water produced a dissolved oxygen profile with high dissolved oxygen concentrations on bottom, low in the mid-region, and moderately high on the surface.

By December 13, (Figure 6) there had been considerable inflow, but the pocket of low dissolved oxygen concentration was still detectable near the mid-section of the pool's profile. By January 17 (Figure 7), considerable mixing had occurred, however, there was still a dissolved oxygen gradient detectable. By March 21 (Figure 8), typical summer stratification patterns were developing which were resulting in lowering of the dissolved oxygen concentrations below the thermocline. The minimum dissolved oxygen concentration measured during this period was near 6 ppm, but the zone of the reservoir which was to become the oxygen-depleted hypolimnic zone was already defined.

Although a considerable quantity of water entered the reservoir pool during the spring of 1970, the defined hypolimnion (below elevation 100 meters) was not disrupted. By June 1970, (Figure 10) a zone of complete dissolved oxygen depletion (less than 0.1 ppm) had developed. At this

stage in the development of the reservoir, a minimum in the metalimnic region was observable near the top of the thermocline from the dam to approximately mid-reservoir. As will be discussed later in this report, the origin of such metalimnic dissolved oxygen minimum is probably an acellerated oxygen depletion in a restricted zone of organic laden runoff water which has interflown the reservoir at this particular level.

During the course of the summer of 1970, the pocket of dissolved oxygen trapped in the downstream section of the reservoir below the thermocline gradually became depleted. By August 21 (Figure 14) the reservoir pool presented the classical picture of an oxygenated epilimnion and a hypolimnion essentially void of dissolved oxygen.

It is unlikely that the dissolved oxygen distribution observed during the initial phase of reservoir filling will be observed after the reservoir fills. The extensive depletion of dissolved oxygen following the first two months of filling is likely to be a problem only while the pool is relatively small.

As shown in Figure 16, the first disruption of the stratified condition of the reservoir occurred in mid-October when moderately low dissolved oxygen concentrations were observed in the upper section of the reservoir (near Station 12). These lowered oxygen concentrations probably reflect the underflow of a cool rain resulting in erosion of the thermocline and subsequent mixing of a portion of the water depleted in dissolved oxygen with the oxygenated surface water.

In early November, moderate rains were experienced throughout the watershed of DeGray Reservoir. The dissolved oxygen profile for November 7, 1970 (Figure 17), clearly shows the beginning of an underflow. The tougue of fresh water has begun to extend itself into the hypolimnic region of the reservoir. The profile for December 12 (Figure 18) indicates that the underflow of water carrying relatively high concentrations of dissolved oxygen has progressed to near mid-reservoir and by January 12 (Figure 20), had compeltely underflown the reservoir, trapping a pocket of oxygen-depleted water at a depth of approximately 15 meters in the downstream section of the impoundment. In this profile, a marked gradient of dissolved oxygen is observed from 15 ppm in the extreme upstream section of the impoundment to less than 0.1 ppm in the trapped pocket near the dam. This gradient would be expected if one considers that there is a larger volume of oxygen-depleted water in the downstream section of the impoundment prior to disruption of the hypolimnion by the underflow.

By January 30 (Figure 21) considerable diffussion and/or mixing of dissolved oxygen had occurred. The fact that the pocket of low dissolved oxygen in the downstream section of the reservoir is still detectable indicates that compelte mixing of the reservoir has not occurred. On February 20 (Figure 22), the dissolved oxygen profile indicates that mixing has occurred, resulting in only a slight gradient of dissolved oxygen ranging from 11 ppm in the upstream section to 7 ppm near the dam.

Layering of the reservoir accompanied by modest oxygen depletion in the deeper water was clearly present by March 20 (Figure 23). The following four dissolved oxygen profiles (Figures 24, 25, 26, and 27) show the gradual development of an oxygen-depleted zone in the hypolimnion. It should be noted that the zero dissolved oxygen contour has proceeded the greatest distance from the reservoir bottom near mid-reservoir. This indicates that the bottom muds in this section of the reservoir are exerting a higher oxygen demand than the bottom muds near the dam or in the upstream section of the reservoir.

By mid-summer the metalimnic dissolved oxygen minimum had developed, but by late July (Figure 31) it could not be detected. The loss of the metalimnic dissolved oxygen minima may be due to a deepening of the epilimnic layer or erosion of the thermocline, causing the oxygenation of the metalimnic water.

Judging from the dissolved oxygen profile of October 23 (Figure 36) and that of December 4 (Figure 37), complete dissolved oxygen depletion (less than 0.1 ppm) below the thermocline probably occurred during early November. During 1971, some oxygen persisted under the thermocline through mid-October, two months longer than during the previous year.

Although some symbolance of the beginning of an underflow was observed in the profile of December 4, 1971 (Figure 37), data taken on January 1, 1972 shows that this inflow of fresh water did not underflow the entire hypolimnion as had occurred during the previous year. The January profile clearly shows that the oxygen depleted water below elevation 95 meters had not been disrupted. However, between the profile measured on January 10 (Figure 38) and that

measured on February 5 (Figure 39), relatively complete mixing had occured. As in the previous year, a gradient of high dissolved oxygen in the upstream section of the reservoir to concentrations less than 5 ppm near the dam was observed.

During the spring and early summer of 1972, dissolved oxygen depletion occurred under the thermocline but to a lesser extent than in the previous year. A comparison of the dissolved oxygen profile observed on May 15, 1972 (Figure 42) and that of May 27, 1971 (Figure 26), shows the extent oxygen depletion was considerably less than in 1972.

The profile observed on April 15, 1972 (Figure 42) shows that there are two pockets where oxygen depletion is beginning. One of the pockets is on the bottom near Station 7 while the other is on bottom at Station 12. The reason for the development of these independent cells of oxygen depletion will be discussed under the section of the report dealing with distribution of iron and manganese.

Turbidity:

Turbidity data are expressed as percent transmittance for a 22 cm light path. The percent of light transmitted by water will be affected by (a) the presence of particulate matter which scatters and/or absorbs the light, and (b) the presence of colored dissolved material (possibly collodial) (14). Visual observations of water samples taken from DeGray Reservoir indicate that the presence of material which would impart a color to the water is very rare. Water taken from the oxygen-depleted zone may develop a color on

standing due to the oxidation of iron, but fresh samples are rarely colored. It is assumed that a decrease in percent absorption indicates the presence of particulate matter which absorbs and/or scatters incident light.

The most probable origin for particulate matter in DeGray Reservoir would be (a) the introduction of silt-laden runoff water, (b) silt from erosion of unstable shorelines, (c) the presence of planktonic organisms, and (d) the presence of particulate matter produced from the oxidation of reduced heavy metals. It has demonstrated that in situ turbidity measurements can be used to indicate the presence of layers of plankton within a body of water. (15). Data are not available to determine if variations in turbidity observed in DeGray Reservoir were associated with the presence of plankton. However, low values of percent transmittance were observed in sections of the reservoir which were obviously receiving silt-laden run-off water. The presence of silt-laden runoff water below the surface of DeGray Reservoir was confirmed by taking samples from layers of the reservoir which had shown low values of percent transmittance. With the exception of the zone of the reservoir near the top of the oxygen-depleted zone, it is likely that major fluctuations in percent trans-mittance are due to the inflow of silt-laden runoff water.

The first turbidity (percent transmittance) profile for DeGray Reservoir was determined on May 12, 1971 (Figure 45). As with the temperature and dissolved oxygen, turbidity was measured over the old river channel at Stations 1, 7, 10, 12, 13 and 14. This first profile indicated that percent transmittance values on the order of 80 percent were obtained

on the surface. A slight decrease in percent transmittance was observed near the top of the thermocline with the most pronounced decrease observed at Station 12. It should also be noted that a marked decrease in percent transmittance was observed near bottom at Station 1.

The second profile was taken on June 5, 1971. Again surface values were near 80 percent transmittance, and there was some slight decreases observed in the vicinity of the thermocline. At Station 1, the increase near bottom was again observed but with a minimum in the percent transmittance occurring approximately 2 meters above bottom. The oxygen profile for June 11, 1971 (Figure 27) shows that oxygen values near 0.0 ppm were present near bottom at Station 1. It is likely that this minimum in the percent transmittance profile at Station 1 was caused by the presence of a layer of oxidized iron and manganese near the intersurface of the oxygen-depleted zone and the zone which contained some dissolved oxygen.

Small decreases in percent transmittance in the vicinity of the thermocline were observed through the month of June. The magnitude of this decrease increased in a upstream direction. In late June 1971, moderate rains were experienced throughout the watershed of DeGray Reservoir. The turbidity profile determined on July 8 shows rather large depressions in percent transmittance at a depth of 8 meters at both Stations 10 and 12. These data indicate that the silt-laden runoff water had underflown the epilimnic layer of the reservoir to a depth where the density of the runoff water equalled that at the 8 meter depth of the water column. At that point, the runoff water flowed through the reservoir through a relatively restricted layer at a depth corresponding

to the density of the runoff water. It should be noted that the turbidity originating from this freshet was observed only to Station 10. Such factors as settling of particulate matter as well as spreading of this layer as the reservoir widens, probably accounts for the disipation of silt.

In late July, two rains in excess of 6 cm were observed throughout the basin of DeGray Reservoir. The turbidity profile measured on July 27 (Figure 51), indicates that the runoff from the first of these rains was detectable at Station 12 with a slight indication at Station 10. On August 4 (Figure 52), the silt-laden interflow near the top of the thermocline was observed to extend to Station 7. Subsequent measurements in September did not indicate that this interflow could be detected at Station 1.

It would appear that the predominate cause for large changes in the turbidity in the vicinity of the thermocline is the inflow of silt-laden runoff water. The characteristic pattern for this interflow seems to be (a) the introduction of a slug of silt-laden water in the upper section of the reservoir during periods of high river flow, (b) the slug of water diving under the epilimnic layer to a depth which corresponds to water which has the same density of the runoff, (c) flow of the silt-laden runoff water through a rather restricted zone of the reservoir to a point where either the interflow stops due to a lack of pressure to push the water through the reservoir or a disipation of the layer with subsequent settling of the silt burden. Characteristically, clearing of the upstream extreme section of the reservoir is observed within a few days after the introduction of the slug of runoff water.

The epilimnion downstream from Station 12 is only disturbed during extended periods of high runoff. Occasionally a double minimum in the percent transmittance profile is observed as Station 10 on October 23, 1971 (Figure 55). Such a double minimum may indicate the interflow of two different water masses, one below the other. Double interflows would be more probable in the fall as atmospheric temperatures, and consequently rain temperatures, begin to decrease.

As mixing of the reservoir begins, the stratification which is necessary to produce a restricted interflow is destroyed. An inspection of the oxygen profile observed on December 4, 1971 (Figure 56), shows that a disruption of the thermocline was occurring in the upper section of the reservoir. The turbidity profile for the same period indicates that the reservoir is in a completely mixed state at Stations 12 and 13, but highly turbid water at a depth of 20 meters at Station 10 shows that a slug of turbid water has underflown the reservoir. On January 10, 1972, (Figure 57), the surface of the reservoir at Station 10 was observed to be very muddy as well as having low values for percent transmittance. As mixing of the reservoir progresses in a downstream direction, the slug of silt-laden water is now detectable at a depth of approximately 25 meters at Station 7. By February 5 (Figure 58), the turbidity profiles indicate essentially straight lines at all stations. This corresponds to an oxygen profile showing that the reservoir was mixed with only a slight gradient of dissolved oxygen from the extreme upper section to the downstream section of the reservoir.

These turbidity data indicate that interflow of cooler

and consequently more dense water through a restricted zone of the reservoir can be expected during the period of stratification. As stratification begins to break up, and the temperature of the runoff water decreases in the winter, the interflow changes to a underflow which initiates the turnover process as it progresses in a downstream direction. This pattern of complete underflow by winter runoff water is consistent with the patterns of dissolved oxygen observed during the winter prior to and during turnover.

The introduction of silt-laden runoff water into a restricted zone of the reservoir during the period of stratification probably gives rise to the metalimnic dissolved oxygen minimum observed during the same period. Silt-laden runoff water might be expected to contain elevated levels of bacteria as well as organic debris. Accellerated oxygen depletion in this restricted zone would account for oxygen distributions showing a minimum in the dissolved oxygen concentration at the same depth where an interflow had been detected a few weeks earlier.

Turbidity data indicate that there is a marked change in the percent transmittance of water near the top of the thermocline following the inflow of silt-laden runoff water. The magnitude of the minimum in the percent transmittance curve near the top of the thermocline seems to decrease over a period of two or three weeks, depending on the amount of water associated with the interflow. Slight minimum in the percent transmittance curve persists near the top of the thermocline even after several weeks. It is likely that

this layer of particulate matter persisting after settline of the sit load, is of biological origin. Fertilization of this restricted layer of the reservoir from the inflow of nutrient laded runoff water may cause this layer to become highly productive. Relatively high productivity in this layer may account for the disapperance of the metalimnic dissolved oxygen minimum during the late summer as shown in the series of dissolved oxygen profiles measured in mid June and late July 1971.

Water Quality:

The sampling program on DeGray Reservoir was begun in September 1969. Following closure of the diversion tunnel the elevation of the reservoir pool changed rapidly until May 1970 when the elevation of the pool was stabilized for the purpose of topping trees. Since the reservoir was in a high state of flux during this initial filling period, water quality data (other than temperature and dissolved oxygen) are not presented prior to May 1970. The results of the analysis of samples taken from the permanent stations on the reservoir between the period from May 1970 through June 1972 are presented in Tables 8 through 43. Data are presented in the following order for each sampling date: pH, alkalinity, calcium, magnesium, sodium, potassium, nitrate, phosphate, chloride, fluoride, sulfate, and COD. The results of heavey metal analysis of samples follow the parameters listed above beginning in January 1971 and are listed in the following order: iron (filtered, iron (particulate), manganese (filtered), manganese (particulate),

copper (filtered), copper (particular), lead (filtered), lead (particulate), cobalt (filtered), cobalt (particulate), nickel (filtered), nickel (particulate), zinc (filtered), zinc (particulate), cadmium (filtered), cadmium (particulate), silver (filtered), silver (particulate).

The investigation of DeGray Reservoir through June 1972 comprised the first phase of the study of this reservoir. The study of DeGray is continuing using essentially the same sampling stations and analytical methods. It is anticipated that this study will continue through June 1975. At the completion of the project in 1975 a comprehensive review of the water quality history of the reservoir (including data covered in this report) will be made.

Figures 63 through 67 give a comparison of the concentration of selected chemical species in the Caddo River prior to impoundment and concentrations observed below the main dam after impoundment. The data represented by solid dots on these figures are taken from three stations located near the present dam site during the pre-impoundment study. The hatched area enclosed by the dotted lines roughly represents the range of values observed prior to impoundment. The data represented by open circles connected by a solid line are for the post-impoundment period at the station located immediately downstream from the main dam.

Figures 68 through 74 summarize water quality data taken from Station 1 on DeGray Reservoir from January 1971 through June 1972. On these figures, the iso-concentration lines are drawn at designated intervals of each constituent.

An attempt has been made to calculate the total quantity of several chemical constituents in DeGray Reservoir from June 1970 through June 1972. Using contour maps for the reservoir, a volume of water corresponding to each sample taken from the reservoir was estimated. The total quantity of each of the constituents was calculated for each compartment, then summed to give a rough estimate of the total quantity of each of these constituents in the reservoir. These data are given in Figures 75 through 83.

In a pre-impoundment water quality survey of the Caddo River during 1966 and 1967 (12), it was shown that the dissolved solids carried by the river decreased in a downstream direction. This study suggested that the decrease in dissolved solids occurred due to the fact that in the headwaters of the Caddo River, an older geologic formation was being drained and that higher concentrations of calcium and magnesium were present in runoff and ground water in this upstream area. As the river entered the younger, sandstone-shale area, more typical of the section of the river inundated by DeGray Reservoir, the runoff water and ground water was very low in dissolved species, especially calcium and magnesium. Thus tributaries containing very low concentrations of dissolved species diluted the dissolved substances in the Caddo River resulting in a low concentration of such species in the downstream section of the river. These earlier observations suggest that oxygenated water within the drainage of DeGray Reservoir does not dissolve large quantities of material from the shale and sandstone of the area.

Data given in Tables 8 through 43 indicate that the predominate dissolved species in DeGray Reservoir are calcium, sodium, magnesium, potassium, bicarbonate, alkalinity, sulfate, chloride, nitrate, and under anoxic conditions, iron and manganese. Of these ions, calcium and bicarbonate were observed to be the highest. The pH values of the reservoir ranged from lows of near 6.3 to a high of near 8. Alkalinity ranged from 20 ppm to 65 ppm with the more common values occurring near 30 ppm. The concentration of other dissolved species were low and were apparently affected by such factors as (a) freshets, (b) biological activity (infered), (c) the development of anoxic conditions, and (d) fall or early winter mixing.

Data given in Tables 8 through 43 indicate that there are several parameters which do not vary significantly throughout DeGray Reservoir. Among the consituents which seem to have a fairly homogeneous distribution are chloride, fluoride, nitrate, and to a lesser extent, sodium and potassium. Other constituents such as calcium, magnesium, alkalinity, ortho phosphate, and to some extent sulfate show gradients during certain periods of the year. For example, during the period of summer stratification in the fall of 1970, a gradient in the calcium concentration was observed with considerably higher values being found in the upstream section of the reservoir (Table 33A). A similar gradient was observed for magnesium. It is possible that such gradients result from the dilution of the higher calcium and magnesium water of the mainstream of the Caddo River with tributary water containing very small concentrations of these constituents.

A rough comparison of the drainage areas above DeGray Reservoir with that which drains directly into the reservoir through tributaries indicates that the Caddo River at the point where it enters DeGray Reservoir has a watershed of approximately 326 square miles, while a 127 square mile area drains directly into the reservoir through tributaries. If one assumes that the quantity of water originating from these two respective areas is proportional to the size of the respective watersheds, such dilution would result in a decrease in concentration by a factor of only 0.7. Even if the tributaries directly entering DeGray Reservoir contained no calcium and magnesium, it seems unlikely that such dilution could produce the observed gradient.

In Figure 63, a comparison of the calcium concentration of the Caddo River near the dam site prior to impoundment with that observed downstream from the dam after impoundment is given. These data indicate that the calcium concentration observed in the river after impoundment remained relatively constant near 10 ppm. Since higher concentrations of calcium were consistently observed in the upper end of the reservoir, it appear as if calcium (and possibly magnesium) enter the upstream section of DeGray Reservoir and through some process are removed as water flows through the reservoir. From thermo-chemical data (16) it seems unlikely that calcium carbonate could be precipitated from water containing such a low concentration of calcium. The observed calcium gradient may be a response to biological activity although it seems unlikely that biota of DeGray could produce

changes on the order that were observed. Since calcium was determined in a raw water sample and the pre-treatment for atomic absorption determination of this element involves acidification, the observed gradient may simply be a response to the presence of a higher quantity of particulate matter in the upstream section of the reservoir.

Calcium data also indicate that there is an enrichment of calcium in the anoxic zone which develops during the late period of thermal stratification. Figure 73 summarizes calcium data for Station 1 on DeGray from January 1971 through June 1972. Comparing this distribution to the dissolved oxygen data expressed in a similar manner (Figure 68), shows that the higher concentrations of calcium were observed in the late period of stratification just prior to mixing of the reservoir. As would be expected, the pH values in this anoxic water during the late period of stratification are considerably less than surface water. It is likely that a lower value of pH would result in a higher concentration of calcium ion in water in contact with either calcium carbonate or calcium absorbed to sediment particles. Thus it would appear that low pH water present in the hypolimnic zone of the reservoir may release calcium from the sediment. Since the watershed of the Caddo River is essentially void of limestone or dolimitic rock, the presence of calcium species in the sediment of the reservoir probably originated from deposition or absorption from the water column earlier in the year.

Data given in Figure 75 indicate that the total quantity of calcium in DeGray Reservoir decreased significantly from

January 1970 through June 1972. These data give additional support to the idea that calcium (and possibly magnesium) is being deposited in DeGray Reservoir.

As shown in Figure 76, the total quantity of ortho phosphate in DeGray Reservoir decreased significantly during the first two years of impoundment. During the summer of 1970, concentrations in excess of 0.20 ppm of ortho phosphate were common on the surface of DeGray with values reaching 0.79 ppm in the hypolimnic zone of the reservoir near the mud-water intersurface. The presence of relatively large quantities of phosphate during the early period of indunation probably resulted from the decomposition of organic matter flooded by the reservoir. It is clear that as the reservoir stabilized, the concentration of ortho phosphate decreased significantly.

The magnitude of hypolimnic enrichment of phosphate has decreased with each successive year since impoundment. During June 1970, the sample taken from a depth of 40 meters at Station 1 had a concentration of near 0.5 ppm ortho phosphate. A sample taken from the same depth approximately one year later had a concentration of only 0.09 ppm. One explanation for the decrease in the ortho phosphate concentration during this period is that the establishment of the reservoir biota removed ortho phosphate from solution. However, this seems unlikely since very little difference in ortho phosphate concentration is observed in subsequent years between the highly productive period (summer and the period of lower productivity winters.)

Figure 74 along with data shown in several of the tables, clearly shows that even after the initial years of flooding, there is some hypolimnic enrichment of ortho phosphate. These elevated concentrations of phospahte are quickly disipated with mixing of the reservoir.

Data in Figure 66 show that the phosphate concentration in the Caddo River prior to impoundment and after impoundment is not greatly different. Some of the peaking of ortho-phospahte in the natural river, probably caused by the release of ortho-phosphate from dying algae, have been removed by the reservoir as indicated by the fairly constant concentration of phosphate observed in the post-impoundment period.

Of the heavy metals studied, iron and manganese are by far the most dynamic. The chemistry of these metals respond to a decrease in redox potential in the anoxic zone of the reservoir (17), forming reduced species which allows them to migrate from bottom muds. The chemistry of these two metals in lakes and reservoirs has been studied by numerous investigators, however, the factors which limit the concentration of the reduced forms of these metals in the hypolimnic zone of reservoirs is not well understood.

For dams which release water from the hypolimnic zone of reservoirs, substantial quantities of these metals may be introduced into the tailwaters. The presence of these metals in tailwaters of reservoirs may cause considerable problems in the treatment of these waters for domestic and industrial use (18). It has also been pointed out that the presence of these reduced species in the tailwaters of reservoirs can exert an oxygen demand on the river, reducing

its capacity to assimulate waste (19).

Unlike the dams which release water from the hypolimnic zone during the period of stratification, releases from DeGray are made from the epilimnic zone. As shown in Figure 67, the natural temperature regiem of the river downstream from DeGray Dam has essentially been preserved. Even during hypolimnic enrichment of iron and manganese, water released from DeGray, as reflected by the data taken on the surface at Station 1, show very low concentrations of these species. Even though there may be considerable cycling of these elements within the reservoir, the regiem of such species as iron and manganese within an upper-level release reservoir should be considerably different from the lower-level release structures which allow considerable quantities of these reduced species to be discharged from the reservoir. Clearly, the factor of removal or discharge of these metals from the reservoir is absent in the case of DeGray.

A summary of the iron and manganese in the filtered fraction at Station 1 is given in Figures 69 and 71 respectively. The accumulation of soluble iron and manganese in the anoxic zone at Station 1 is apparent. Peak concentrations of iron near the mud-water intersurface occurred in October. The peak concentrations were followed by a substantial decrease in the iron concentration. The removal of the soluble iron species is probably due to the precipitation of iron (II) sulfide as hydrogen sulfide forms in the later stages of oxygen depletion.

High manganese concentrations near the mud-water intersurface persist until early December when the concentration was observed to decrease from 5 ppm to around 2 ppm. This decrease in manganese concentration also suggests removal of the metal from the water column by the formation of some insoluble compound, probably a sulfide of manganese.

As shown in Figures 38 and 39, the upper limit of dissolved oxygen depletion gradually decreased during the months of January and early February 1972. As mixing and the subsequent oxygenation of deep water occurred, elevated concentrations of both iron and manganese disipated as shown in Figures 69 and 71.

Figure 77 shows the total quantity of iron in DeGray Reservoir between June 1970 and June 1972. Data are presented for both the filtered fraction (Fe_f) and the particulate fraction (Fe_p). The total quantity of soluble iron present in the reservoir (Fe_f) clearly shows a cyclic nature in obvious response to the accumulation of reduced iron in the hypolimnic zone of the reservoir during the period of stratification. As deepening of the epilimnion of the reservoir occurred after October, the total quantity of iron in solution began to decrease. At the same time an increase in the iron in the particulate fraction was observed. Since maximum concentrations of iron in the particulate fraction did not approach the concentrations of soluble iron, it is obvious that the bulk of the oxidized iron which is formed at the time of mixing settles from the water column.

The largest quantity of soluble iron in DeGray Reservoir during the late summer and fall of 1970 was near 3×10^9 grams while the maximum concentration in the fall of 1971 was less than 1×10^9 grams. These data suggest a damped oscillation for the total iron content of the reservoir, with a higher iron content being observed during the initial years of impoundment followed by a decrease in the peak in subsequent years. Data taken in subsequent years will confirm if such a damped oscillation is occuring in this reservoir.

A similar pattern for the total quantity of manganese in DeGray Reservoir was observed as shown in Figure 78. Peak values for the total quantity of manganese were observed in the late summer and early fall. The peak value for the fall of 1970 was higher than the fall of 1971, again suggesting the damped oscillation. This decrease in the maximum total quantity of both iron and manganese in the reservoir is probably a response to the length of time which the sediments were exposed to anoxic conditions. As shown in the earlier dissolved oxygen data, dissolved oxygen depletion (less than 0.5 ppm dissolved oxygen) occurred later each year following impoundment. Consequently, the length of time to which bottom muds have been exposed to oxygen depleted water has been shorter each year since impoundment.

Figures 84 through 91 show the distribution of soluble iron and manganese in DeGray Reservoir for selected dates. As shown in Figures 84 and 85, there had been considerable accumulation of iron and manganese in the hypolimnion of DeGray by mid-December 1970. During the last week in December 1970, moderately heavy rains were experienced throughout

the watershed of the Caddo River. As discussed earlier under the section on dissolved oxygen distribution, the runoff water from these rains apparently underflowed the reservoir and by January 12, 1971, had caused oxygenated water to appear on the bottom of the reservoir at the dam. As shown in Figures 86 and 87, this underflow of well oxygenated water caused the high iron and manganese water to be trapped at mid elevations from roughly mid reservoir to the dam. Data shown in subsequent weeks (Tables 20D and 21D) show that this trapped pocket containing relatively high concentrations of iron and manganese gradually dissipated as mixing of the reservoir occurred. It would appear that unique distribution of iron and manganese could be expected when there has been a sizable inflow of cold runoff water into a reservoir which is still stratified. The most likely time for this phenomena to be observed would be following a period of heavy runoff during the winter prior to mixing of the reservoir.

Figures 88 and 89 show the iron and manganese distribution in DeGray for early June 1971. It is interesting to note that the highest concentrations of iron were observed near mid reservoir rather than at the deepest part of the reservoir near the dam. The oxygen demand of silt which has been trapped by the reservoir may account for the higher concentrations of iron at this location. An inspection of Figures 24 through 26 show that oxygen depletion did, in fact, begin near mid reservoir rather than in the deepest part of the DeGray Reservoir in its location falling very

near the dam. Consequently, bottom materials in this area were the first to be exposed to anoxic conditions. It is likely that during the initial filling of the reservoir (see Figure 2), the sediment load was deposited in this mid section of the reservoir.

Figures 90 and 91 show the iron and manganese distribution in mid June 1972. These figures clearly show that there are two distinct pockets of high iron and to a lesser extent, manganese. Since considerable increase in pool elevation of the reservoir had taken place, it would be expected that sediment load would be deposited farther upstream in the reservoir. Consequently, sediment had been deposited in sections of the reservoir, the first near mid reservoir during the initial filling period and the second in the upstream section as the reservoir approached normal pool elevation. Assuming that the reservoir is operated near normal pool elevation, it is likely that the bulk of sediment will continue to be deposited in the upstream section of the reservoir.

As sediment accumulates, it is likely that the oxygen demand caused by the sediments will produce an oxygen-depleted hypolimnion in the upstream section of the reservoir earlier than at mid reservoir. Oxygen depletion with subsequent reduction of iron and manganese would first appear in the upstream hypolimnion and gradually proceed downstream through the period of stratification.

Although oxygen depletion followed by reduction of iron and manganese near mid reservoir would logically be expected only during the initial years of impoundment, similar conditions might be observed following the draw down of a reservoir. Sediment introduced into the reservoir

through density currents which have been demonstrated to occur in DeGray may cause deposition of sediment further into the reservoir than would be expected from plug flow. It appears likely that as DeGray ages, reduced iron and manganese will probably appear first in the upstream hypolimnion and progress downstream during the period of stratification.

Estimations of the total quantities of other heavy metals in DeGray Reservoir are given in Figures 79 through 83. An inspection of actual concentration values for these metals in Tables 19 through 43 indicate that statistical error due to analytical technical as well as sampling is probably very high. It is obvious from the data expressed in Figures 79 through 83 that these data are highly variable and that little significance can be placed on many of the observed fluctuations. Although the concentration of some of these metals might be expected to fluctuate in response to such factors as reduced redox potential, pH, absorption onto oxides of iron and manganese, it seems unlikely that over short periods of time changes on the order shown by these data could occur.

Even with the rather large degree of variability of these data, some trends are suggested. For example, in Figure 83, there seems to be a general decrease in the content of lead in the filtered fraction over the period studied. It would also appear that the ratio of lead in the filtered fraction to that in the particulate fraction is near one. The ratio of zinc in the filtered fraction to that in the particulate fraction is near one also. Zinc in the filtered fraction (Figure 82) indicates that there was

a gradual increase in the zinc content of the reservoir between June 1971 and December 1971. Such an increase would be expected if there was a hypolimnic enrichment of zinc during the late period of stratification. Hypolimnic enrichment of zinc might be expected since lower values of pH in the hypolimnion could cause de-absorption of zinc from bottom muds. Although the concentration of cadmium observed in DeGray is relatively small, the data shown in Figure 79 are suggestive of some type of seasonal cycling of this element. Since considerable difficulty in eliminating cadmium contamination during analysis was encountered, little significance can be placed on the observed fluctuations.

The continued study of these heavy metals in DeGray Reservoir along with refinement in the calculation of total quantities in the reservoir may reveal trends which cannot be detected over a short period of observation.

Although it is difficult to draw meaningful conclusions from the calculations of the total quantities of heavy metals (other than iron and manganese) in DeGray Reservoir, inspection of heavy metal data for specific dates as shown in Tables 19 through 43 does give some indication as to the response of these metals to conditions found in the hypolimnion of the reservoir. For example, Table 37G shows modest hypolimnic enrichment of zinc at Station 1. There is also some suggestion of hypolimnetic enrichment of cadmium although the possibility of contamination has not been eliminated.

It has been shown that absorption of heavy metals onto oxides of iron and manganese is an important factor

in governing the concentration of the metal in water (20). At the time of mixing, the oxidation of iron and manganese from the hypolimnion of the reservoir results in the presence of relatively large quantities of these metals in the particulate fraction. The scavanging action of this precipitation should result in a marked decrease in the content of heavy metals which absorb to the particles of hydrous iron and manganese oxides. Should the concentration of metals such as copper, cobalt, nickel, zinc, lead, silver and cadmium become high enough, a decrease in their concentration should be detected at the time of mixing. The low concentrations of these metals encountered in DeGray Reservoir did not permit the observation of a significant decrease at the time of mixing.

The low concentrations of heavy metals other than iron and manganese are in accord with the values of cadmium, lead and zinc for several streams in Arkansas as reported by the U.S. Geological Survey (21). As has been shown earlier, there appears to be a very limited interaction of surface water with the sandstone and shale in the section of the Ouachita Mountains flooded by DeGray Reservoir.

Assuming that there is no anomolous introduction of heavy metals from cultural activities, it is likely that only metals which are present in relatively high concentrations in rocks throughout the watershed of DeGray Reservoir and which respond to a decrease in redox potential and/or a decrease in pH, will undergo a significant degree in cycling within the reservoir.

SUMMARY AND RECOMMENDATIONS

1. During the initial months of impoundment, the DeGray Reservoir pool became depleted in dissolved oxygen to an extent that early stocking in the lower two thirds of the reservoir was apparently not successful. Such extensive oxygen depletion may be expected when the ratio of volume to surface area flooded is small. Problems which develop during the initial months of impoundment might be avoided by beginning impoundment immediately prior to the season during which maximum rain would be expected. This would minimize the time in which the ratio of volume to surface area flooded would be very small.

2. Classical dissolved oxygen depletion was observed to take place under the thermocline in DeGray. Complete dissolved oxygen depletion under the thermocline occured later each year. Data indicate that the concentration of dissolved oxygen in the hypolimnion during comparible periods for successive years probably increases but may approach a limiting concentration some years after impoundment.

3. Turnover or mixing of the reservoir was observed to occur by a mass of cold runoff water completely underflowing the reservoir in the early winter carrying dissolved oxygen into the hypolimnion of the reservoir. Underflows were observed to trap a quantity of low

dissolved oxygen water at mid elevation in the downstream half of the reservoir. The trapping of low quality water at mid elevations should be expected when stratification persists into the early winter followed by a large cold rain. The presence of this pocket of low quality water should be considered in selecting the elevation from which water is to be released from the reservoir.

4. Using in situ turbidity, interflows of silt-laden run off water were detected near the top of the thermocline. These interflows apparently occur when runoff which is colder than the epilimnic layer enters the reservoir. Turbidity measurements clearly show that these density flows can dive under the reservoir and flow in a restricted zone to a point near mid reservoir. The occurance of density currents will be an important factor in determining the distribution of sediments in the reservoir.

5. Acellerated dissolved oxygen depletion was observed to occur at the elevation of the interflow during the weeks just following the interflow. The acellerated dissolved oxygen depletion at this depth resulted in the production of a metalimnic dissolved oxygen minima. Dissolved oxygen concentrations in this restricted zone of the reservoir were observed to approach zero by mid summer. The occurance of these dissolved oxygen minima within a reservoir should be considered in selecting the level of water release from a reservoir. It would appear that the most probable place for this minimum to occur would be near the top of the thermocline.

6. The total quantity of both iron and manganese in the soluble fraction was observed to cycle in response to the occurance of an oxygen depleted zone within the reservoir. Data indicate that the total quantity of these metals present in the reservoir reaches a maximum during the late period of stratification and a minimum during the mixed period. The maximum concentration was observed to decrease in successive years of impoundment and the data suggest a damped oscillation pattern for the seasonal fluctuation of these two metals.

7. Temperature data taken in the tailwater of DeGray Reservoir show that the warm water release structure has maintained the natural temperature regeim of the Caddo River as determined in a pre-impoundment water quality study of the river. The pH of the tailwaters appears to be lower than the river prior to impoundment from October through April then higher during the remainder of the year. Alkalinity data also indicate that lower values have been observed since impoundment. The concentration of calcium in the post-impoundment period was found to remain constant near 9 ppm while the river prior to impoundment had a variable calcium concentration ranging from 4 to 14 ppm. Although these changes may appear to be insignificant, the long term effect of such small changes in water quality on natural systems of a stream cannot be overlooked as a possible factor in determining the effect of impoundment on the stream below a dam.

8. The distribution of iron and manganese during the early period of stratification indicate that during the first year that dissolved oxygen depletion and the associated buildup of iron and manganese began at the bottom near mid reservoir. During the comparable period in the following year, the dissolved oxygen depletion and associated buildup of iron and manganese occured simultanously near mid reservoir and in the hypolimnion of the upstream section of the reservoir. It is likely that the sediment load carried into the reservoir in successive years was deposited in the extreme upstream section of the reservoir. The observed accumulation of high concentrations of iron and manganese may be related to the location of sediment deposition. This would suggest that sections of the reservoir which can be kept clear of significant sediment deposition may not develop oxygen depletion as early in the period of stratification as those sections which have received sediment. In the advent that the pool elevation of a reservoir was decreased drastically in anticipation of spring rains, sediment deposition would be expected to extend downstream into the reservoir to a greater distance than if the pool had been maintained at a higher elevation. Such factors may be significant in reservoir which are being managed to support a trout fishery in the section of the reservoir below the thermocline.

REFERENCES CITED

1. Arkansas Geological Survey, Geological Map of Arkansas, U.S. Geological Survey, Washington, D.C., 1929.

2. U.S. Corps of Engineers, Vicksburg District, Informal report presented at the DeGray Seminar, Ouachita Baptist University, Arkadelphia, Arkansas, February 1972, (unpublished).

3. Standard Methods for the Examination of Water and Waste Water, APHA, AWWA, and WPCF, New York, 11th Edition, 1960.

4. Orion Research Corp., Manual for Chloride Electrode, Orion Research Inc., Cambridge, Mass., 1969.

5. Orion Research Corp., Manual for Fluoride Electrode, Orion Research Inc., Cambridge, Mass., 1971.

6. R. J. Bertolacini and J. E. Barney, Colorimetric Determination of Sulfate with Barium Chloranalate, Analytical Chemistry, 29, 281, 1957.

7. Russell E. Frazier, Polarographic Determination of Nitrate Nitrogen in Water, Journal of the American Water Works Association, 55, 624, 1963.

8. J. Nix, The Distribution of Trace Metals in Impoundments, Publication No. 6, Arkansas Water Resources Research Center, Fayetteville, Arkansas, 1971.

9. Perkin Elmer Corp., Analytical Methods for Atomic Absorption Spectroscopy, Norwalk, Connecticut, 1971.

10. G. Fred Lee and Eugene M. Bentley, Determination of Calcium in Natural Water by Atomic Absorption Spectroscoy, Env. Sci. and Tech., 1, 721, 1969.

11. J. Nix and Tom Goodwin, The Simultaneous Extraction of iron, manganese, nickel, chromium, lead, and zinc from natural water for determination by atomic absorption spectroscopy, Atomic Absorption Newsletter, 9, 119, 1970.

12. J. Nix, Preimpoundment Water Quality Survey of the Caddo River, Arkansas, Final Report on Contract Number DACW 38-67-C-0013, Vicksburg District, U.S. Corps of Engineers, Vicksburg, Mississippi, 1967.

13. Bill Keith, Arkansas Game and Fish Commission, Personal Communication, October 1969.

14. A. P. Black and Sidney A. Hannah, Measurement of Low Turbidities, J. Am. Water Works Assn., 57, 901, 1965.

15. A. L. Baker and A. J. Brook, Optical Density profiles as an aid to the study of microstratified phytoplankton populations in lakes, Arch. Hydrobiologiy, 69, 214, 1971.

16. Robert M. Garrels and Charles L. Christ, Solutions, Minerals, and Equilibrium, Harper and Row, New York, 1965.

17. G. Evelyn Hutchinson, A Treatise on Limnology, Volume I, John Wiley and Sons, New York, 1957.

18. Robert S. Ingols and Robert D. Wilroy, Observations on Manganese in Georgia Waters, J. Am Water Works Assn., 54, 203, 1962.

19. Robert S. Ingols, Pollutional Effects of Hydraulic Power Generation, Sewage and Industrial Wastes, 29, 292, 1957.

20. U. S. Geological Survey, Reconnaissance of Selected Minor Elements in Surface Waters of the United States, Geological Survey Circular 643, U. S. Geological Survey Circular 643, U.S. Geological Survey, Washington, D.C., 1970.

Table 1

Pertinent Information on DeGray Dam and Reservoir

Location of Dam (river mile)	8
Drainage Area Controlled	453 Sq. Mi.
Minimum Pool	
elevation	112 m (msl)
surface area	6,400 acres
Maximum Power and Water Supply (normal pool)	
elevation	124 m (msl)
surface area	13,400 acres
Flood Control Pool	
elevation	129 m (msl)
surface area	17,000 acres
Elevation of River Bed at Dam	64 m (msl)
Normal Annual Rainfall in Basin	132 cm

Table 2

DeGray Reservoir
Temperature (°C) 1-30-71

Depth (M)	Station 1	7	10	12
0	8.3	9.3	9.1	8.3
2	7.9	8.5	8.1	7.9
4	7.8	8.0	8.0	7.6
6	7.7	7.7	7.8	7.2
8	7.5	7.3	7.5	6.7
10	7.4	7.3	7.0	
12	7.3	7.2	6.7	
14	7.3	7.2	6.0	
16	7.2	7.0	5.8	
18	7.2	6.9	5.7	
20	7.2	6.8		
22	7.2	6.5		
24	7.2	6.0		
26	7.2	5.8		
28	7.1	5.7		
30	7.0	5.7		
32	6.8	5.7		
34	6.8			
36	6.8			
38	6.8			
40	6.8			
42	6.7			
44	6.7			
46	6.7			
48	6.7			

Table 3

DeGray Reservoir
Temperature (°C) 5-27-71

Depth (M)	Station 1	7	10	12	13
0	22.3	22.0	23.3	24.0	24.8
2	22.2	22.0	23.3	23.9	24.1
4	21.7	21.9	22.8	22.0	22.6
6	20.6	19.6	17.2	18.5	18.4
8	13.3	13.0	13.8	13.8	
10	11.0	11.2	11.0	11.7	
12	10.1	9.9	10.0		
14	9.2	9.2	9.2		
16	8.5	8.6	9.0		
18	8.0	8.1	8.8		
20	7.8	7.8	8.6		
22	7.4	7.7	8.3		
24	7.2	7.4			
26	7.1	7.3			
28	7.1	7.3			
30	7.0	7.3			
32	7.0	7.3			
34	7.0	7.3			
36	7.0	7.4			
38	7.0				
40	6.9				
42	6.9				
44	6.9				
46	6.9				
48	6.9				
50	7.1				
52	7.2				

Table 4

DeGray Reservoir
Temperature (°C) 6-18-71

Depth (M)	Station 1	7	10	12	13
0	31.0	32.0	30.0	30.5	30.1
2	29.0	30.0	29.8	29.0	29.9
4	26.5	27.0	26.1	25.5	26.1
6	22.1	21.1	22.0	21.0	20.5
8	15.0	14.0	14.5	15.5	17.1
10	11.0	12.0	11.5	12.0	
12	9.2	10.5	10.1		
14	8.1	9.5	9.1		
16	7.9	8.9	8.5		
18	7.5	8.0	8.0		
20	7.1	7.9	7.9		
22	7.0	7.5			
24	7.0	7.0			
26	7.0	7.0			
28	7.0	7.0			
30	7.0	7.0			
32	7.0	7.0			
34	7.0	7.0			
36	7.0	7.0			
38	7.0				
40	7.0				
42	7.0				
44	7.0				
46	7.0				
48	7.0				
50	7.0				
52					

Table 5

DeGray Reservoir
Temperature (°C) 8-23-71

Depth (M)	Station 1	7	10	12	13
0	28.0	29.9	28.5	28.9	29.9
2	28.2	28.9	28.9	28.9	29.0
4	28.1	28.6	28.0	28.8	28.5
6	26.0	28.1	26.9	28.0	27.2
8	19.1	24.2	23.5	26.5	26.9
10	13.9	15.1	16.0	23.1	
12	11.2	12.1	12.1	16.1	
14	10.1	10.5	10.5	12.1	
16	9.5	9.9	9.9		
18	9.0	9.1	9.1		
20	8.5	8.9	9.0		
22	8.1	8.5	9.0		
24	8.0	8.1			
26	7.9	8.0			
28	7.9	8.0			
30	7.8	8.0			
32	7.6	8.0			
34	7.5	8.0			
36	7.5	8.0			
38	7.5				
40	7.5				
42	7.5				
44	7.6				
46	7.9				
48	7.9				
50	8.0				
52	8.0				

Table 6

DeGray Reservoir
Temperature (°C) 12-4-71

Depth (M)	Station 1	7	10	12	13
0	10.1	10.2	10.1	8.8	6.3
2	10.3	10.4	10.2	8.8	6.3
4	10.2	10.5	10.2	8.8	6.3
6	10.2	10.5	10.2	8.8	6.3
8	10.2	10.5	10.2	8.8	6.3
10	10.2	10.5	10.2	8.5	
12	10.2	10.5	10.2	8.2	
14	9.8	10.4	10.1		
16	9.0	10.4	10.0		
18	8.8	10.3	10.0		
20	8.4	9.4	9.9		
22	8.2	9.0			
24	8.0	8.9			
26	8.0	8.6			
28	8.0	8.3			
30	7.9	8.2			
32	7.9	8.1			
34	7.8	8.2			
36	7.7	8.2			
38	7.7	8.1			
40	7.8				
42	7.9				
44	8.0				
46	8.0				
48	8.0				
50	8.0				

Table 7

Depth (M)	1969 9/26	10/18	11/8	12/13	1/17	3/21	5/2	5/18	6/15	7/7	7/23	8/13
0	26.0	21.2	16.7	10.3	6.9	9.6	19.2	25.0	28.0	28.6	26.2	28.9
2	24.3	20.8	16.1	10.1	6.9	9.0	19.2	25.0	27.2	28.6	26.0	28.7
4	24.1	20.8	16.1	10.0	6.6	9.0	19.0	24.0	23.0	24.1	25.2	28.4
6	24.0	20.7	15.5	9.9	6.3	9.1	19.0	18.2	16.1	15.7	16.3	17.4
8	24.0	20.7	15.0	9.7	6.2	9.1	16.3	16.9	12.1	11.7	12.3	12.9
10	24.0	20.7	14.9	9.7	6.2	9.2	14.0	15.0	10.0	9.8	10.2	10.5
12	23.9	20.5	14.0	9.7	6.2	9.2	11.0	13.0	9.0	8.9	9.2	9.5
14		20.2	13.6	9.6	6.2	7.9	10.2	10.4	8.0	8.0	8.3	8.6
16		20.2	13.5	9.0	6.2	6.9	10.0	9.8	7.5	7.7	7.8	7.9
18				8.5	6.1	6.4	8.9	9.0	7.0	7.1	7.3	7.4
20				8.1	6.1	6.3	7.8	8.0	6.9	7.0	7.0	7.2
22				8.0	6.0	6.1	7.1	7.3	6.9	6.9	7.0	7.1
24				7.6	6.0	6.0	6.9	7.0	6.8	6.8	7.0	7.0
26				7.5	6.0	5.8	6.8	6.9	6.7	6.7	6.9	6.9
28				7.5			6.7	6.6	6.5	6.7	6.8	6.9
30							6.5	6.3	6.5	6.7	6.8	6.9
32							6.3	6.1	6.5	6.7	6.8	6.9
34							6.2	6.1	6.4	6.6	6.8	6.9
36							6.2	6.1	6.4	6.6	6.8	7.0
38							6.1	6.1	6.4	6.8	7.0	7.2
40							6.1	6.1	6.9	7.1	7.1	7.2
42							6.1	6.1	7.0	7.2	7.1	7.3
44							6.1	6.1	7.0	7.3	7.2	7.4
46							6.1	6.1	7.0			7.4
48							6.1	6.1	7.0			
50							6.1	6.1	7.0			

Table 7
(cont.)

Depth (M)	1970(cont.) 8/21	9/19	10/10	11/7	12/2	12/16	1971 1/12	1/30	2/20	3/20	4/24	5/18
0	28.6	27.8	19.8	14.1	13.0	9.9	8.6	8.3	9.3	9.0	19.8	21.0
2	28.6	26.6	19.7	14.3	12.5	9.9	8.2	7.9	8.0	9.0	16.7	20.5
4	27.8	26.3	19.7	14.3	11.4	9.9	8.1	7.8	7.6	9.0	16.2	19.1
6	17.0	19.2	19.7	14.4	11.1	9.9	7.8	7.7	7.3	9.0	16.1	14.2
8	12.3	12.3	13.9	14.2	10.7	9.9	7.5	7.5	7.2	9.0	15.0	11.9
10	10.2	10.2	10.3	13.7	10.3	9.9	7.5	7.4	7.0	9.0	11.2	10.5
12	9.0	9.1	9.5	9.9	10.1	9.9	7.5	7.3	6.9	9.0	10.8	9.8
14	8.1	8.2	8.5	8.9	10.0	9.9	7.5	7.3	6.8	9.0	9.2	8.9
16	7.5	7.8	7.9	8.2	8.6	9.2	7.5	7.2	6.6	9.0	8.7	8.4
18	7.1	7.5	7.6	7.9	8.0	9.0	7.4	7.2	6.6	9.0	8.0	8.0
20	7.1	7.3	7.4	7.7	7.9	8.1	7.3	7.2	6.5	9.0	7.8	7.8
22	7.0	7.2	7.2	7.5	7.8	8.0	7.3	7.2	6.5	9.0	7.5	7.4
24	7.0	7.2	7.2	7.3	7.8	7.9	7.3	7.2	6.3	9.0	7.4	7.2
26	7.0	7.1	7.1	7.2	7.6	7.8	7.3	7.2	6.3	8.0	7.2	7.2
28	6.9	7.1	7.1	7.2	7.5	7.8	7.3	7.1	6.3	7.2	7.0	7.2
30	6.9	7.0	7.1	7.2	7.4	7.5	7.2	7.0	6.3	7.0	7.0	7.1
32	6.9	7.0	7.1	7.2	7.4	7.5	7.2	6.8	6.2	7.0	7.0	7.0
34	6.9	7.3	7.3	7.2	7.4	7.4	7.2	6.8	6.2	6.9	7.0	7.0
36	7.1	7.3	7.4	7.5	7.4	7.4	7.2	6.8	6.2	6.8	7.0	7.0
38	7.1	7.3	7.5	7.7	7.6	7.6	7.2	6.8	6.2	6.8	7.0	7.0
40	7.1	7.2	7.5	7.8	7.8	7.8	7.1	6.8	6.2	6.8	7.0	7.0
42	7.4	7.4	7.5	7.8	7.8	7.8	7.1	6.7	6.2	6.7	7.0	7.0
44	7.4	7.6		7.8	7.8	7.8	7.0	6.7	6.2	6.7	7.0	7.0
46						7.8	7.0	6.7	6.2	6.7	7.0	7.0
48							7.0	6.7		6.7	7.0	
50										6.8	7.0	

Table 7
(cont.)

Depth (M)	1971(cont.) 5/27	6/3	6/11	6/18	7/8	7/27	8/4	8/13	8/23	9/11	10/2	10/23
0	22.3	23.5	27.0	31.0	28.8	27.9	26.1	27.9	28.0	7.1	25.3	21.0
2	22.2	23.3	25.9	29.0	28.5	28.0	26.0	28.0	28.2	7.1	25.1	21.1
4	21.7	22.9	24.2	26.5	28.2	28.0	26.0	28.0	28.1	7.1	24.8	21.1
6	20.6	21.2	21.0	22.1	23.0	27.0	18.1	26.1	26.0	7.0	24.1	21.1
8	13.3	14.9	14.2	15.0	15.6	15.1	12.6	20.5	19.1	0.7	22.9	21.0
10	11.0	11.4	11.0	11.0	12.7	12.0	11.0	14.1	13.9	0.2	15.9	15.1
12	10.1	10.2	9.5	9.2	10.6	10.5	10.1	11.5	11.2	0.9	11.8	11.8
14	9.2	9.7	8.8	8.1	9.5	10.0	9.5	10.1	10.1	1.6	10.2	10.8
16	8.5	8.8	8.0	7.9	9.0	9.1	9.0	9.5	9.5	1.8	9.8	9.7
18	8.0	8.4	7.8	7.5	8.7	9.0	8.6	9.0	9.0	1.6	9.0	9.0
20	7.8	7.9	7.2	7.1	8.0	8.5	8.1	8.4	8.5	1.0	8.8	8.8
22	7.4	7.5	7.0	7.0	8.0	8.1	8.0	8.2	8.1	0.9	8.3	8.2
24	7.2	7.3	6.9	7.0	7.9	8.0	8.0	8.0	8.0	0.9	8.0	8.0
26	7.1	7.2	6.8	7.0	7.8	8.0	7.9	8.0	7.9	[illegible]	8.0	8.0
28	7.1	7.2	6.6	7.0	7.7		7.8	7.9	7.9	[illegible]	8.0	7.9
30	7.0	7.1	6.5	7.0	7.7		7.6	7.6	7.8	[illegible]	7.9	7.9
32	7.0	7.1	6.5	7.0	7.7		7.6	7.5	7.6	0.0	7.9	7.8
34	7.0	7.0	6.4	7.0	7.7		7.5	7.4	7.5	0.0	7.8	7.8
36	7.0	7.0	6.4	7.0	7.7		7.5	7.4	7.5	0.0	7.8	7.8
38	7.0	7.0	6.4	7.0	7.7		7.5	7.4	7.5	0.0	7.8	7.8
40	6.9	7.0	6.4	7.0	7.7		7.5	7.4	7.5	0.0	7.8	7.8
42	6.9	7.0	6.4	7.0	7.7		7.9	7.5	7.5	0.0	7.9	7.9
44	6.9	6.9	6.4	7.0	7.7		8.0	.76	7.6	0.0	8.0	8.0
46	6.9	7.0	6.5	7.0	7.7		8.0	7.9	7.9	0.0	8.0	8.0
48	6.9	7.1	6.8	7.0	7.7		8.0	7.9	7.9	0.0	8.1	8.1
50	7.1	7.2	6.9	7.0	7.7			8.0	8.0	0.0	8.1	8.1
52	7.2		6.9					8.0	8.0	0.0		8.2

Table 7
(cont.)

Depth (M)	1971 12/4	1972 1/10	2/5	3/4	4/15	5/15	5/29	6/13
0	10.1	9.7	7.8	9.8	17.9	21.8	26.4	26.1
2	10.3	9.6	7.7	9.7	17.5	21.3	26.4	26.1
4	10.2	9.5	7.7	9.7	17.0	12.1	26.0	24.6
6	10.2	9.4	7.7	9.3	15.5	21.0	21.5	21.2
8	10.2	9.3	7.6	9.1	14.8	19.9	19.0	18.3
10	10.2	9.3	7.6	8.3	12.2	17.3	16.4	16.0
12	10.2	9.2	7.6	8.1	10.0	11.9	12.9	13.0
14	9.8	9.1	7.6	8.0	9.0	10.1	10.2	11.1
16	9.0	9.1	7.7	8.0	8.5	9.2	9.3	9.8
18	8.8	9.0	7.7	7.9	8.1	8.8	8.8	9.1
20	8.4	9.0	7.8	7.8	8.0	8.3	8.5	8.7
22	8.2	9.0	7.8	7.8	8.0	8.0	8.3	8.3
24	8.0	9.0	7.7	7.8	7.9	8.0	8.0	8.2
26	8.0	9.0	7.6	7.7	7.8	8.0	8.0	8.1
28	8.0	8.8	7.6	7.6	7.8	8.0	8.0	8.1
30	7.9	8.3	7.6	7.6	7.7	8.0	8.0	8.0
32	7.9	8.0	7.6	7.6	7.7	8.0	7.9	7.9
34	7.8	8.0	7.6	7.6	7.7	8.0	7.9	7.9
36	7.7	8.0	7.6	7.6	7.6	8.0	7.9	7.9
38	7.7	8.0	7.5	7.5	7.6	8.0	7.9	7.9
40	7.8	8.0	7.5	7.5	7.5	7.9	7.9	7.9
42	7.9	8.0	7.5	7.5	7.7	7.9	7.9	7.8
44	8.0	8.0	7.4	7.4	7.6	7.9	7.9	7.9
46	8.0	8.0	7.4	7.4	7.6	7.9	7.9	7.9
48	8.0	8.0	7.3	7.4	7.6	7.9	7.9	7.9
50	8.0	8.0	7.2	7.4	7.6	7.9	7.9	7.9
52		8.0	7.2	7.4	7.6	7.9	7.8	7.9
54			7.1	7.4	7.6	8.0	7.8	

Table 8A

DeGray
5/2/70
pH

Depth (m)	1	7	10	12	13
0	7.3	7.4	7.5	7.2	
5	7.4	7.1	7.3	7.4	
10	7.3	7.1	7.4		
15	7.2	7.2	7.5		
20	7.0	7.3			
30	6.9				
40	6.8				
50					

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	5.7	6.5	4.9	6.5	
5	6.0	5.3	4.3	7.1	
10	6.3	4.8	4.1		
15	7.2	6.6	3.5		
20	7.6	7.2			
30	7.7				
40	7.2				
50					

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.1	1.1	1.1	1.2	
5	1.2	1.1	1.0	1.3	
10	1.4	1.0	1.0		
15	1.5	1.2	0.9		
20	1.6	1.5			
30	1.4				
40	1.5				
50					

Table 8B

DeGray
5/2/70

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	1.9	1.8	1.7	2.0	
5	1.9	1.8	1.6	2.0	
10	1.9	2.1	1.5		
15	1.9	2.1	1.4		
20	1.9	2.0			
30	1.9				
40	1.9				
50	1.9				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.1	1.1	1.1	1.0	
5	1.2	1.1	0.8	0.9	
10	1.2	1.0	0.9		
15	1.3	1.0	0.9		
20	1.3	0.9			
30	1.2	1.2			
40	1.2				
50	1.1				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.7	2.0	2.0	
5	1.4	1.6	1.5	1.7	
10	1.4	2.5	2.6		
15	1.6	1.3	2.8		
20	1.6	1.7			
30	1.7				
40	2.8				
50					

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.21	0.20	0.25	0.22	
5	0.21	0.21	0.20	0.21	
10	0.24	0.25	0.22		
15	0.23	0.25	0.23		
20	0.20	0.19			
30	0.21	0.24			
40	0.22				
50	0.22				

Table 8C

DeGray
5/2/70

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	0.75	1.00	1.50	1.25	
5	1.50	0.25	0.50	1.25	
10	1.50	1.75	0.50		
15	1.25	1.75	1.25		
20	2.00	1.50	1.00		
30	1.75	1.50			
40	2.25				
50	2.25				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 9A

DeGray
6/15/70

pH

Depth (m)	1	7	10	12	13
0	7.5	7.7	7.7	8.0	
5	7.5	6.8	7.1	7.9	
10	6.9	6.9	6.8		
15	6.9	6.7	6.8		
20	7.0	6.7			
30	6.9	6.6			
40	6.7	6.5			
50	6.9				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	6.2	7.0	8.0	12.5	
5	4.7	5.2	6.3	9.2	
10	6.0	6.0	8.3		
15	7.2	6.7	12.1		
20	7.4	6.8			
30	7.5	13.6			
40	12.0	15.3			
50	12.0				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.1	1.2	1.6	1.7	
5	1.1	1.2	1.2	1.7	
10	1.2	1.2	1.2		
15	1.7	1.3	2.0		
20	1.7	1.6			
30	1.7	1.6			
40	2.2				
50	1.2				

Table 9B

DeGray
6/15/70

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	1.6	1.4	1.8	2.1	
5	1.4	1.6	2.0	2.2	
10	1.6	1.8	1.9		
15	1.7	2.0	2.0		
20	1.7	1.8			
30	1.7	2.0			
40	1.8				
50	1.8				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.1	1.2	1.6	1.7	
5	1.1	1.2	1.2	1.7	
10	1.2	1.2	1.2		
15	1.7	1.3	2.0		
20	1.7	1.6			
30	1.7	1.6			
40	2.2				
50	1.2				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.3		0.4	
5	1.4	3.0	1.8	0.8	
10	1.6	1.2	3.0		
15	1.8	1.0	6.0		
20	1.7	2.5			
30	1.7	8.6			
40	5.8				
50	6.8				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.26	0.25	0.22	0.23	
5	0.24	0.29	0.23	0.25	
10	0.25	0.28	0.38		
15	0.25	0.29	0.56		
20	0.28	0.33			
30	0.25	0.60			
40	0.45				
50	0.61				

Table 9C

DeGray
6/15/70

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	2.3	2.2	2.2	2.5	
5	1.7	2.1	2.4	2.1	
10	1.8	2.4	2.0		
15	2.3	2.7	2.5		
20	2.8	2.2			
30	2.5	2.2			
40	2.2				
50	2.6				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.2	0.2	0.2	0.2	
5	0.1	0.1	0.1	0.2	
10	0.1	0.1	0.1		
15	0.1	0.1	0.1		
20	0.1	0.1			
30	0.1	0.1			
40	0.1				
50	0.0				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	7	3	2	0	
.5	5	9	0	5	
10	6	12	1		
15	0	0	3		
20	0	4			
30	0	10			
40	7	14			
50	13				

Table 10A

DeGray
6/24/70

pH

Depth (m)	1	7	10	12	13
0	7.6	7.7	7.2	7.9	
5	6.8	6.7	7.5	7.4	
10	6.9	7.2	7.3		
15	6.9	6.7	7.0		
20	7.1	6.8			
30	6.9	6.7			
40	7.0	6.9			
50	6.6				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	5.2	6.1	7.9	13.6	
5	4.5	5.2	7.4	11.4	
10	6.1	5.3	8.0		
15	6.6	6.5	11.0		
20	6.9	7.8			
30	8.2	11.2			
40	10.8				
50	11.6				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.3	1.4	1.7	2.0	
5	1.1	1.1	1.6	1.9	
10	1.4	1.1	1.7		
15	1.6	1.6	2.2		
20	2.3	1.8			
30	1.8	1.7			
40	2.0	1.8			
50	3.0				

Table 10B

DeGray
6/24/70

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.0	1.9	2.1	2.5	
5	1.8	1.9	2.2	2.5	
10	2.0	2.2	2.2		
15	2.1	2.2	2.4		
20	2.0	2.2			
30	2.1	2.2			
40	2.1				
50	2.1				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.3	1.2	1.4	1.0	
5	1.2	1.5	1.5	1.1	
10	1.3	1.1	1.5		
15	1.5	1.4	1.8		
20	1.5	1.5			
30	1.5	1.6			
40	1.8	1.9			
50	2.2				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	0.9	1.4	1.9	0.1	
5	2.0	6.2	3.3	2.1	
10	1.3	2.0	4.1		
15	2.2	2.6	6.8		
20	1.7	2.2			
30	2.2	3.5			
40	8.8				
50	8.9				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.23	0.22	0.23	0.20	
5	0.24	0.28	0.25	0.23	
10	0.23	0.22	0.41		
15	0.35	0.31	0.57		
20	0.24	0.34			
30	0.25	0.38			
40	0.56				
50	0.59				

Table 10C

DeGray
6/24/70

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	1.1	1.5	1.3	1.3	
5	1.1	1.3	1.2	1.3	
10	1.2	1.3	1.8		
15	1.6	1.6	2.0		
20	1.8	1.5			
30	1.5	1.6			
40	1.9	1.4			
50	1.8				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.1	0.1	0.2	0.1	
5	0.0	0.1	0.0	0.1	
10	0.1	0.0	0.1		
15	0.1	0.1	0.1		
20	0.0	0.0			
30	0.1	0.1			
40	0.1	0.1			
50	0.1				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	26	16	12	20	
5	18	24	15	28	
10	7	27	16		
15	19	8	22		
20	13	11			
30	12	9			
40	25	12			
50	20				

Table 11A

DeGray
7/7/70

pH

Depth (m)	1	7	10	12	13
0	8.5	8.3	8.0	8.0	
5	8.2	7.7	7.6	7.6	
10	8.5	7.7	7.5		
15	8.2	7.6	7.5		
20	7.7	7.6			
30	7.5	7.4			
40	7.5				
50	7.5				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	6.5	6.8	9.8	16.6	
5	5.6	6.4	9.0	12.3	
10	6.9	6.3	9.4		
15	7.7	7.7	12.8		
20	8.9	7.9			
30	8.2	17.6			
40	12.0				
50	13.2				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.4	1.5	1.8	2.3	
5	1.1	1.3	1.7	2.2	
10	1.4	1.4	1.8		
15	1.7	1.6	2.5		
20	1.7	1.7			
30	1.8	3.4			
40	2.9				
50	3.0				

Table 11B

DeGray
7/7/70

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.1	2.1	2.3	2.4	
5	1.7	1.9	2.2	2.5	
10	2.0	2.1	2.2		
15	2.0	2.3	2.3		
20	2.1	2.2			
30	2.0	2.3			
40	2.1				
50	2.2				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.3	1.3	1.3	4.1	
5	1.1	1.4	1.5	1.2	
10	1.2	1.0	1.4		
15	1.4	1.3	1.7		
20	1.3	1.4			
30	1.4	2.2			
40	1.8				
50	1.9				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.1	1.1	1.9	
5	1.9	3.0	3.3	2.4	
10	1.3	1.0	3.5		
15	1.9	1.9	6.5		
20	1.5	2.3			
30	1.3	11.4			
40	7.5				
50	8.6				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.22	0.21	0.22	0.18	
5	0.25	0.34	0.21	0.16	
10	0.23	0.20	0.07		
15	0.22	0.23	0.43		
20	0.24	0.24			
30	0.25	0.43			
40	0.45				
50	0.40				

Table 11C

DeGray
7/7/70

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	3.1	2.8	2.5	3.0	
5	2.1	2.2	2.5	2.6	
10	3.1	3.0	2.5		
15	3.2	3.2	3.0		
20	3.0	3.1			
30	2.7	3.5			
40	2.6				
50	3.0				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.1	0.1	0.1	0.1	
5	0.1	0.0	0.1	0.1	
10	0.0	0.1	0.0		
15	0.1	0.1	0.1		
20	0.1	0.1			
30	0.1	0.1			
40	0.1				
50	0.1				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	12	7	8	5	
5	14	15	10	3	
10	8	5	10		
15	7	3	10		
20	6	7			
30	5	14			
40	11				
50	13				

Table 12A

DeGray
7/23/70

pH

Depth (m)	1	7	10	12	13
0	7.6	7.1	6.8	7.1	
5	6.8	7.2	6.4	7.1	
10	7.2	6.3	6.3		
15	7.3	6.9			
20	7.1	7.1			
30	7.0	7.2			
40	7.0				
50	6.9				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	6.3	7.2	9.3	16.6	
5	5.9	6.5	10.3	16.5	
10	6.2	6.1	9.7		
15	7.6	7.5			
20	7.5	8.2			
30	8.3	13.7			
40	12.3				
50	14.4				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.3	1.4	1.7	2.1	
5	1.2	1.3	1.6	2.2	
10	1.3	1.3	1.9		
15	1.6	1.4			
20	1.6	1.6			
30	1.7	2.7			
40	2.6				
50	2.8				

Table 12B

DeGray
7/23/70

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	1.8	1.8	2.0	2.0	
5	1.5	1.8	1.9	2.0	
10	1.7	1.9	1.9		
15	1.8	2.0			
20	1.8	1.9			
30	1.8	1.9			
40	1.8				
50	2.0				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.0	1.4	1.4	0.8	
5	1.1	1.3	1.4	0.8	
10	1.1	0.8	1.5		
15	1.4	1.2			
20	1.1	1.1			
30	1.4	1.9			
40	1.3				
50	1.6				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.5	1.1	0.1	
5	2.0	2.2	1.8	0.5	
10	2.1	>12	4.3		
15	2.5	2.3			
20	2.0	2.7			
30	1.4	7.1			
40	6.9				
50	9.0				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.29	0.26	0.29	0.23	
5	0.26	0.31	0.30	0.22	
10	0.26	0.27	0.68		
15	0.25	0.49			
20	0.30	0.44			
30	0.30	0.81			
40	0.76				
50	1.02				

Table 12C

DeGray
7/23/70

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	2.2	1.8	2.2	2.1	
5	1.3	1.6	1.5	2.2	
10	1.8	14.	1.9		
15	2.2	2.0			
20	1.5	1.9			
30	2.0				
40	1.9				
50	2.6				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.12	0.11	0.14	0.26	
5	0.08	0.12	0.08	0.16	
10	0.14	0.09	0.13		
15	0.09	0.07			
20	0.11	0.11			
30	0.14	0.08			
40	0.09				
50	0.07				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	12	7	3	6	
5	6	6	13	3	
10	2	14	8		
15	3	8			
20	3	1			
30	8	6			
40	6				
50	5				

Table 13A

DeGray
8/13/70

pH

Depth (m)	1	7	10	12	13
0	7.0	7.1		7.3	
5	6.5	6.5	6.3	6.7	
10	6.3	6.4	6.4		
15	6.3	6.4	6.4		
20	6.3	6.3			
30	6.5	6.3			
40	6.4				
50	6.4				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	6.2	6.7	11.5	16.5	
5	6.8	6.4	10.0	17.1	
10	6.2	5.9	10.0		
15	7.0	6.9	13.9		
20	7.4	7.9			
30	7.5	14.9			
40	12.2				
50	13.6				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.3	1.3	2.0	2.4	
5	1.2	1.3	1.7	2.6	
10	1.3	0.9	2.0		
15	1.4	1.4	2.8		
20	1.6	1.6			
30	1.8	3.4			
40	2.9				
50	3.3				

Table 13B

DeGray
8/13/70

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.0	2.0	2.1	2.0	
5	1.6	1.8	2.0	2.0	
10	1.8	1.8	2.2		
15	1.8	1.9	2.0		
20	1.8	1.9			
30	1.8	2.0			
40	1.9				
50	1.9				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.4	1.4	1.3	0.9	
5	1.2	1.3	1.6	1.1	
10	1.2	1.0	1.6		
15	1.3	1.3	1.9		
20	1.3	1.4			
30	1.4	2.0			
40	1.7				
50	2.3				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	1.3	1.7	1.3	0.4	
5	1.5	2.4	4.3	1.3	
10	1.8	1.7	5.0		
15	1.9	2.5	8.1		
20	1.8	3.3			
30	2.2	10.8			
40	7.9				
50	10.2				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.24	0.20	0.23	0.19	
5	0.25	0.24	0.25	0.21	
10	0.23	0.27	0.52		
15	0.36	0.38	0.69		
20	0.25	0.38			
30	0.27	0.62			
40	0.59				
50	0.79				

Table 13C

DeGray
8/13/70

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	2.8	3.0	2.6	2.6	
5	1.8	1.9	2.6	2.2	
10	2.3	2.0	2.0		
15	2.7	2.1	2.0		
20	2.5	2.2			
30	2.7	2.6			
40	2.0				
50	2.7				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.08	0.08	0.14	0.15	
5	0.08	0.09	0.09	0.10	
10	0.08	0.05	0.10		
15	0.08	0.06	0.10		
20	0.08	0.10			
30	0.10	0.10			
40	0.08				
50	0.08				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	12	4	12	2	
5	14	13	17	14	
10	3	11	14		
15	3	16	12		
20	4	13			
30	1	19			
40	16				
50	18				

Table 14A

DeGray
8/21/70

pH

Depth (m)	1	7	10	12	13
0	7.0	7.1	7.2	7.2	
5	6.3	6.4	6.1	6.5	
10	6.3	6.3	6.3		
15	6.3	6.3	6.3		
20	6.3	6.3			
30	6.3	6.3			
40	6.5				
50	6.5				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	6.8	7.4	12.5	16.4	
5	6.1	7.2	12.0	18.6	
10	7.5	6.4	10.1		
15	8.1	10.8	14.5		
20	7.6	9.3			
30	8.4	15.0			
40	11.6				
50	12.8				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.4	1.5	2.0	2.2	
5	1.3	1.4	2.0	2.6	
10	1.4	1.5	1.9		
15	1.6	1.5	2.6		
20	1.6	1.6			
30	1.8	3.3			
40	2.7				
50	3.2				

Table 14B

DeGray
8/21/70

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.0	2.1	2.2	2.1	
5	1.8	2.0	2.2	2.3	
10	2.0	2.1	2.1		
15	2.0	2.1	2.2		
20	2.0	2.1			
30	2.0	2.2			
40	2.0				
50	2.1				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.4	1.5	1.1	
5	1.3	1.6	1.8	1.4	
10	1.2	1.2	1.6		
15	1.4	1.4	1.8		
20	1.4	1.5			
30	1.4	2.1			
40	1.5				
50	1.9				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	0.9	1.0	0.6	0.0	
5	1.0	1.0	1.4	1.5	
10	1.1	0.8	2.8		
15	1.1	1.3	4.2		
20	0.9	1.8			
30	1.0	2.2			
40	5.3				
50	6.2				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.23	0.21	0.23	0.16	0.16
5	0.22	0.20	0.23	0.23	0.23
10	0.37	0.17	0.12		
15	0.31	0.26	0.15		
20	0.27	0.15			
30	0.37	0.17			
40	0.66				
50	0.61				

Table 14C

DeGray
8/21/70

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	2.3	3.0	2.7	3.1	
5	2.9	1.7	1.9	1.8	
10	3.6	2.2	2.4		
15	2.6	2.0	2.2		
20	3.1	2.5			
30	3.3	2.5			
40	2.3				
50	2.6				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.09	0.10	0.08	0.21	
5	0.00	0.12	0.07	0.09	
10	0.00	0.04	0.00		
15	0.13	0.03	0.00		
20	0.03	0.08			
30	0.04	0.07			
40	0.00				
50	0.08				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	4	6	5	0	
5	2	2	9	0	
10	0	0	5		
15	1	1	7		
20	2	3			
30	2	3			
40	2				
50	8				

Table 15A

DeGray
9/19/70

pH

Depth (m)	1	7	10	12	13
0	6.9	6.9	7.0	7.3	
5	6.9	6.5	6.5	6.8	
10	6.3	6.5	6.3		
15	6.5	6.4	6.3		
20	6.5	6.4			
30	6.5	6.3			
40	6.5				
50	6.5				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	4.1	1.9	9.9	11.1	
5	4.0	4.6	9.1	11.2	
10	4.6	4.0	5.5		
15	4.6	6.8	8.4		
20	6.0	9.1			
30	5.0				
40	9.0				
50	10.0				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.8	2.0	2.0	
5	1.5	1.7	1.5	2.6	
10	1.7	1.5	2.0		
15	1.8	1.8	3.0		
20	1.8	1.8			
30	1.5				
40	2.8				
50	3.4				

Table 15B

DeGray
9/19/70

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	1.7	1.9	2.1	2.2	
5	1.7	2.1	2.2	2.1	
10	1.7	1.9	2.1		
15	2.0	2.1	2.7		
20	1.8	2.0			
30	1.8				
40	2.0				
50	2.1				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.0	1.4	1.6	1.0	
5	1.2	1.6	1.9	1.0	
10	1.2	1.0	1.6		
15	1.4	1.2	1.9		
20	1.3	0.2			
30	1.4	1.7			
40	1.5				
50	1.3				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	1.0	1.4	0.7	0.0	
5	1.2	1.2	1.4	1.7	
10	1.2	1.9	4.8		
15	1.7	2.6	7.3		
20	1.7	3.5			
30	2.2	7.4			
40	6.9				
50	8.1				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.09	0.11	0.10	0.15	
5	0.09	0.09	0.11	0.08	
10	0.10	0.11	0.33		
15	0.09	0.19	0.47		
20	0.12	0.24			
30	0.15	0.38			
40	0.49				
50	0.44				

Table 15C

DeGray
9/19/70
Chloride (ppm)

Depth (m)	1	7	10	12	13
0	2.4	2.2	1.3	2.6	
5	1.4	1.7	1.2	0.9	
10	1.2	0.7	1.8		
15	1.0	1.2	1.7		
20	1.2	1.3			
30	0.9	2.2			
40	2.1				
50	3.0				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.07	0.08	0.10	0.12	
5	0.10	0.12	0.12	0.10	
10	0.04	0.05	0.08		
15	0.10	0.08	0.09		
20	0.08	0.07			
30	0.09	0.09			
40	0.08				
50	0.09				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	0	0	0	5	
5	0	2	0	0	
10	1	0	5		
15	1	3	0		
20	0	5			
30	0	3			
40	6				
50	5				

Table 16A

DeGray
10/10/70

pH

Depth (m)	1	7	10	12	13
0	6.7	6.7	6.8	7.3	
5	6.7	6.7	6.8	7.3	
10	6.3	6.3	6.3		
15	6.5	6.3	6.4		
20	6.4	6.3			
30	6.5	6.3			
40	6.4				
50	6.5				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	6.6	7.3	13.4	17.0	
5	6.6	7.6	13.2	17.2	
10	6.3	6.8	12.7		
15	7.3	8.5	13.9		
20	7.8	8.6			
30	8.2	10.3			
40	13.0				
50	13.4				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.4	1.5	2.3	2.2	
5	1.4	1.6	2.1	2.2	
10	1.5	1.4	2.3		
15	1.6	1.7	2.5		
20	1.7	1.8			
30	1.8	2.2			
40	2.9				
50	3.3				

Table 16B

DeGray
10/10/70

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	1.9	2.0	2.4	2.3	
5	2.0	2.1	2.3	2.3	
10	1.9	2.2	2.4		
15	2.0	2.1	2.2		
20	2.0	2.1			
30	2.0	2.2			
40	2.1				
50	2.2				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.4	1.6	1.7	1.0	
5	1.5	1.7	1.8	1.0	
10	1.2	1.3	2.2		
15	1.3	1.5	1.9		
20	1.5	1.6			
30	1.4	1.7			
40	1.9				
50	1.9				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	1.4	1.4	1.0	0.2	
5	1.1	1.3		0.4	
10	1.3	2.1	5.3		
15	1.5	2.6	4.8		
20	1.5	3.0			
30	1.9	0.0			
40	3.0				
50	7.0				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.14	0.12	0.12	0.09	
5	0.13	0.14	0.13	0.10	
10	0.17	0.13	0.44		
15	0.10	0.24	0.48		
20	0.15	0.28			
30	0.17	0.30			
40	0.44				
50	0.52				

Table 16C

DeGray
10/10/70

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	1.6	1.6	2.8	2.1	
5	1.5	1.9	2.1	2.8	
10	1.5	1.7	1.6		
15	1.5	1.5	1.4		
20	1.2	1.4			
30	1.7	1.7			
40	1.8				
50	2.1				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.00	0.08	0.10	0.12	
5	0.05	0.07	0.09	0.10	
10	0.00	0.00	0.00		
15	0.05	0.04	0.07		
20	0.07	0.05			
30	0.00	0.00			
40	0.06				
50	0.07				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	6	9	6	0	
5	1	3	9	7	
10	2	0	14		
15	2	3	3		
20	11	8			
30	3	9			
40	9				
50	3				

Table 17A

DeGray
11/7/70

pH

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	7.3	9.3	10.8		
5	7.4	9.3	11.0		
10	7.4	8.0	13.0		
15	8.2	9.3	12.2		
20	8.3	9.6			
30	8.9	9.7			
40	11.3				
50	12.5				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.8	1.8		
5	1.5	1.8	1.9	2.0	
10	1.5	1.5	2.6		
15	1.7	1.8	3.4		
20	1.7	1.9			
30	1.9	2.0			
40	3.0				
50	3.6				

Table 17B

DeGray
11/7&70

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.0	2.0	1.8		
5	2.0	2.2	1.7	2.4	
10	1.9	2.1	2.2		
15	2.0	2.1	2.2		
20	2.0	2.0			
30	2.0	2.0			
40	2.1				
50	2.2				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.4	1.6	1.5		
5	1.4	1.8	1.4	0.9	
10	1.4	1.5	1.8		
15	1.3	1.4	1.6		
20	1.4	1.5			
30	1.4	1.6			
40	1.7				
50	1.8				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	1.3	1.3	2.2		
5	1.4	1.3	2.9	0.6	
10	1.2	1.8	3.5		
15	1.4	2.9	4.7		
20	2.0	2.5			
30	2.4	3.2			
40	4.7				
50	5.1				

Phospahte - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.09	0.09	0.12		
5	0.09	0.09	0.10		
10	0.10	0.09	0.13		
15	0.01	0.11	0.15		
20	0.09	0.11			
30	0.12	0.13			
40	0.18				
50	0.14				

Table 17C

DeGray
11/7/70

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	5.6	2.3	5.4	7.5	
5	3.5	2.4	3.5	7.5	
10	1.7	3.0	1.6		
15	1.7	3.1	1.8		
20	6.9	2.5			
30	6.4	1.2			
40	5.6				
50	7.1				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.09	0.14	0.08	0.10	
5	0.06	0.09	0.09	0.10	
10	0.11	0.04	0.04		
15	0.04	0.08	0.09		
20	0.07	0.11			
30	0.10	0.06			
40	0.10				
50	0.07				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	13	1	4		
5	7	8	10	0	
10	3	4	8		
15	7	1	8		
20	4	12			
30	17	9			
40	8				
50	8				

Table 18A

DeGray
12/16/70

pH

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	4.8	6.4	8.2	13.0	
5	4.6	6.8	8.4	13.7	
10	5.3	6.9	8.2		
15	5.2	8.2	9.4		
20	5.6	7.0			
30	5.7	7.5			
40	8.9				
50	8.3				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.6	1.8	1.8	2.0	
5	1.6	1.7	1.8	2.0	
10	1.6	1.8	1.9		
15	1.7	1.8	1.9		
20	1.7	2.1			
30	1.8	2.1			
40	1.2				
50	3.8				

Table 18B

DeGray
12/16/70

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	1.7	1.9	1.8	2.4	
5	1.7	1.9	1.7	2.0	
10	1.7	1.8	1.8		
15	1.9	1.8	1.7		
20	1.6	1.8			
30	1.6	2.1			
40	1.8				
50	1.9				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.7	1.4	0.7	
5	1.5	1.6	1.3	0.7	
10	1.7	1.7	1.4		
15	1.5	1.5	1.3		
20	1.6	1.7			
30	1.5	1.8			
40	1.7				
50	1.7				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.17	0.20	0.15	0.12	
5	0.15	0.09	0.15	0.12	
10	0.15	0.14	0.15		
15	0.16	0.19	0.18		
20	0.17	0.23			
30	0.12	0.20			
40	0.27				
50	0.29				

Table 18C

DeGray
12/16/70

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	2.5	4.0	2.7	4.2	
5	3.0	3.6	2.6	3.8	
10	2.1	3.0			
15	3.1	2.6	2.8		
20	2.5	2.3			
30	3.5	2.2			
40	3.5				
50	1.9				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.11	0.15	0.11	0.19	
5	0.10	0.09	0.16	0.16	
10	0.14	0.01	0.26		
15	0.10	0.16	0.09		
20	0.09	0.00			
30	0.09	0.06			
40	0.09				
50	0.05				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	16	8	5	7	
5	14	13	14	5	
10	12	12	18		
15	14	10	12		
20	12	12			
30	22				
40	11				
50	11				

Table 19A

DeGray
1/12/71

pH

Depth (m)	1	7	10	12	13
0	6.4	6.6	6.9	6.9	
5	6.5	6.6	6.9	6.9	
10	6.3	6.6	6.9		
15	6.3	6.6	6.8		
20	6.5	6.8	6.7		
30	6.5	6.8			
40	6.3				
50	6.5				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	7.6	8.9	8.7	8.4	
5	7.6	9.1	8.7	8.3	
10	7.5	8.6	8.6		
15	7.7	9.8	7.3		
20	7.6	10.0	7.4		
30	7.7	10.4			
40	7.5				
50	7.8				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.7	1.9	1.8	1.4	
5	1.7	1.8	1.6	1.4	
10	1.7	1.7	1.5		
15	1.6	1.8	1.4		
20	1.7	1.8	1.4		
30	1.7	1.8			
40	1.6				
50	1.7				

Table 19B

DeGray
1/12/71

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.0	2.1	2.2	2.1	
5	1.9	2.0	2.1	2.2	
10	1.9	2.0	2.2		
15	1.8	1.9	2.0		
20	2.0	2.1	2.1		
30	2.0	2.1			
40	1.8				
50	1.8				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.5	1.0	0.7	
5	1.5	1.6	0.9	0.7	
10	1.5	1.5	1.1		
15	1.6	1.6	1.1		
20	1.4	1.4	1.2		
30	1.4	1.4			
40	1.5				
50	1.6				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	2.0	2.0	1.8	1.4	
5	2.0	1.9	2.0	1.5	
10	2.3	2.0	2.5		
15	2.3	1.8	3.5		
20	2.3	1.9	3.7		
30	2.1	1.8			
40	2.4				
50	2.1				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.16	0.12	0.11	0.09	
5	0.18	0.11	0.09	0.11	
10	0.14	0.13	0.15		
15	0.15	0.12	0.14		
20	0.15	0.12	0.12		
30	0.13	0.11			
40	0.14				
50	0.18				

Table 19C

DeGray
1/12/71

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	2.2	2.2	2.8	2.6	
5	1.5	2.2	3.3	2.3	
10	1.5	2.3	2.9		
15	2.6	2.3	3.0		
20	3.1	2.6	3.6		
30	2.5	2.1			
40	1.9				
50	1.8				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.11	0.14	0.12	0.10	
5	0.09	0.11	0.12	0.13	
10	0.17	0.009	0.21		
15	0.11	0.21	0.08		
20	0.04	0.09	0.06		
30	0.04	0.11			
40	0.11				
50	0.06				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	9	15	15	6	
5	17	14	15	13	
10	9	18	22		
15	7	3	14		
20	16	22	18		
30	15	19			
40	10				
50	17				

Table 19D

DeGray
1/12/71

Iron, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.144	0.130	0.022	0.006	
5	0.154	0.152	0.034	0.024	
10	0.180	0.400	0.026		
15	0.900	0.050	0.005		
20	0.650	0.092	0.009		
30	0.550				
40	0.148				
50	0.118				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	>0.250	0.063	0.050	0.038	
5	0.140	0.071	0.048	0.038	
10	>0.250	0.060	0.091		
15	0.100	0.074	0.185		
20	0.177	0.032	0.780		
30	0.085	0.026			
40	0.130				
50					

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.118	0.066	0.021	0.002	
5	0.131	0.066	0.020	0.015	
10	0.146	0.087	0.011		
15	0.742	0.029	0.008		
20	0.544	0.048	0.008		
30	0.221	0.034			
40	0.085				
50	0.061				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.136	0.078	0.009	0.002	
5	0.140	0.110	0.008	0.015	
10	0.140	0.100	0.011		
15	0.018	0.063	0.012		
20	0.117	0.035	0.221		
30	0.142	0.017			
40	0.213				
50					

Table 19E

DeGray
1/12/71

Copper, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.010	0.009	0.013	0.011	
5	0.005	0.014	0.016	0.015	
10	0.006	0.016	0.015		
15	0.011	0.005	0.002		
20	0.010	0.011	0.008		
30	0.012	0.010			
40	0.005				
50	0.003				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.007	0.002	0.002	0.003	
5	0.006	0.003	0.003	0.015	
10	0.007	0.004	0.004		
15	0.009	0.006	0.004		
20	0.005	0.004			
30	0.004	0.003			
40	0.007				
50					

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.016	0.028	0.010	0.020	
5	0.019	0.014	0.014	0.018	
10	0.021	0.019	0.022		
15	0.024	0.018	0.021		
20	0.015	0.007	0.020		
30	0.007	0.021			
40	0.006				
50	0.021				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 19F

DeGray
1/12/71

Cobalt, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	
5	0.000	0.000	0.002	0.000	
10	0.000	0.000	0.000		
15	0.002	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.001	0.000	
5	0.002	0.000	0.000	0.000	
10	0.000	0.000	0.000		
15	0.000	0.000	0.003		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.001	0.002	0.001	
5	0.000	0.003	0.003	0.000	
10	0.000	0.004	0.004		
15	0.003	0.000	0.004		
20	0.000	0.000	0.000		
30	0.002	0.001			
40	0.000				
50	0.003				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 19G

DeGray
1/12/71

Zinc, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.002	0.003	0.000	
5	0.002	0.004	0.017	0.004	
10	0.000	0.019	0.006		
15	0.012	0.000	0.000		
20	0.002	0.003	0.000		
30	0.014	0.005			
40	0.035				
50	0.026				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.000	0.002	0.000	
5	0.007	0.005	0.000	0.000	
10	0.013	0.005	0.002		
15	0.014	0.008	0.000		
20	0.004	0.001	0.002		
30	0.000				
40	0.013				
50					

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.001	0.002	0.003	
5	0.001	0.001	0.001	0.002	
10	0.001	0.001	0.002		
15	0.002	0.001	0.004		
20	0.001	0.001	0.001		
30	0.001	0.001			
40	0.001	0.001			
50	0.010				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.002	0.002	0.001	
5	0.002	0.002	0.001	0.002	
10	0.002	0.002	0.002		
15	0.005	0.001	0.000		
20	0.001	0.001	0.001		
30	0.000	0.001			
40	0.001				
50					

Table 19H

DeGray
1/12/71

Silver, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.001	0.000	0.000	
5	0.001	0.000	0.001	0.000	
10	0.000	0.001	0.000		
15	0.000	0.000	0.000		
20	0.001	0.001	0.000		
30	0.001	0.005			
40	0.002				
50	0.000				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.000	0.000	0.000	
5	0.000	0.000	0.000	0.000	
10	0.000	0.000	0.000		
15	0.000	0.000	0.000		
20	0.006	0.000	0.001		
30	0.000	0.002			
40	0.001				
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 20A

DeGray
1/30/71
pH

Depth (m)	1	7	10	12	13
0	6.6	6.7	6.9	6.9	
5	6.6	6.7	6.7	7.0	
10	6.6	6.7	6.7		
15	6.5	6.6	6.7		
20	6.5	6.6			
30	6.6	6.7			
40	6.7				
50	6.7				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	8.4	9.7	9.4	10.8	
5	8.4	9.6	9.5	10.9	
10	8.5	9.0	9.2		
15	8.5	9.7	8.2		
20	8.5	10.0			
30	10.2	8.8			
40	10.4				
50	10.3				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.7	1.7	1.6	1.6	
5	1.7	1.7	1.6	1.6	
10	1.7	1.7	1.5		
15	1.7	1.7	1.5		
20	1.7	1.7			
30	1.8	1.7			
40	1.7				
50	1.8				

Table 20B

DeGray
1/30/71

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	1.8	1.9	2.1	2.2	
5	1.8	1.8	2.0	2.0	
10	1.8	1.9	2.0		
15	1.9	1.9	2.0		
20	1.8	1.9			
30	1.9	2.0			
40	1.9				
50	2.0				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.5	1.0	0.8	
5	1.4	1.5	1.0	0.7	
10	1.5	1.6	1.0		
15	1.6	1.6	1.0		
20	1.5	1.3			
30	1.4	1.0			
40	1.4				
50	1.4				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	1.9	1.7	1.5	0.80	
5	1.9	1.8	1.5	0.80	
10	1.5	1.6	1.5		
15	1.7	1.6	1.9		
20	1.6	1.8			
30	1.5	2.2			
40	1.6				
50	1.9				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.12	0.10	0.08	0.07	
5	0.12	0.13	0.08	0.07	
10	0.12	0.10	0.09		
15	0.14	0.12	0.10		
20	0.12	0.11			
30	0.11	0.09			
40	0.12				
50	0.10				

Table 20C

DeGray
1/30/71

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	3.3	3.1	3.6	2.9	
5	3.4	3.3	4.0	3.0	
10	3.4	3.8	3.2		
15	2.5	3.1	3.4		
20	3.3	4.0			
30	3.1	3.4			
40	3.2				
50	3.8				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.05	0.05	0.21	0.11	
5	0.03	0.10	0.06	0.20	
10	0.14	0.07	0.10		
15	0.00	0.00	0.09		
20	0.03	0.08			
30	0.05	0.15			
40	0.00				
50	0.15				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	0	5	0	0	
5	0	0	0	0	
10	2	0	0		
15	3	8	0		
20	0	0.5			
30	7	0			
40	3				
50	0				

Table 20D

DeGray
1/30/71

Iron, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.328	0.264	0.039	0.006	
5	0.248	0.134	0.020	0.006	
10	0.182	0.086	0.023		
15	0.240	0.132	0.022		
20	0.284	0.039			
30	0.170	0.036			
40	0.126				
50	0.100				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.077	0.031	0.042	0.057	
5	0.064	0.030	0.047	0.054	
10	0.054	0.042	0.050		
15	0.060	0.046	0.096		
20	0.066	0.035			
30	0.054	0.072			
40	0.064				
50	0.070				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.293	0.119	0.014	0.016	
5	0.222	0.078	0.005	0.012	
10	0.154	0.060	0.022		
15	0.177	0.056	0.045		
20	0.269	0.019			
30	0.157	0.052			
40	0.107				
50	0.165				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.022	0.010	0.012	0.006	
5	0.021	0.012	0.011	0.006	
10	0.029	0.024	0.011		
15	0.032	0.027	0.013		
20	0.036	0.021			
30	0.030	0.018			
40	0.027				
50	0.023				

Table 20E

DeGray
1/30/71

Copper, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.006	0.005	0.005	
5	0.004	0.003	0.003	0.005	
10	0.003	0.002	0.009		
15	0.008	0.004	0.010		
20	0.005	0.003			
30	0.005	0.005			
40	0.004				
50	0.001				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.011	0.008	0.004	0.004	
5	0.005	0.003	0.002	0.003	
10	0.003	0.012	0.004		
15	0.004	0.013	0.008		
20	0.002	0.003			
30	0.004	0.001			
40	0.003				
50	0.005				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.000	0.000	0.000	
5	0.004	0.000	0.006	0.008	
10	0.007	0.005	0.000		
15	0.005	0.004	0.004		
20	0.001	0.000			
30	0.008	0.000			
40	0.000				
50	0.000				

Table 20F

DeGray
1/30/71

Cobalt, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.000	0.003	0.002	
5	0.001	0.002	0.002	0.000	
10	0.003	0.003	0.002		
15	0.005	0.001	0.003		
20	0.000	0.064			
30	0.002	0.003			
40	0.002				
50	0.001				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.002	0.001	0.001	
5	0.000	0.004	0.003	0.000	
10	0.000	0.002	0.002		
15	0.001	0.003	0.001		
20	0.002	0.001			
30	0.001	0.001			
40	0.000				
50	0.003				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.000	0.000		
5	0.000	0.000	0.003	0.001	
10	0.000	0.000	0.000		
15	0.000	0.000	0.000		
20	0.000	0.000			
30	0.000	0.000			
40	0.000				
50	0.000				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.005	0.000	0.000	0.007	
5	0.000	0.000	0.002	0.002	
10	0.004	0.004	0.000		
15	0.000	0.007	0.000		
20	0.005	0.000			
30	0.002	0.000			
40	0.004				
50	0.002				

Table 20G

DeGray
1/30/71

Zinc, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.012	0.007	0.006	0.015	
5	0.001	0.002	0.000	0.003	
10	0.002	0.002	0.004		
15	0.002	0.002	0.004		
20	0.001	0.001			
30	0.002	0.004			
40	0.004				
50	0.001				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.006	0.004	0.002	0.002	
5	0.004	0.003	0.004	0.003	
10	0.002	0.006	0.003		
15	0.002	0.007	0.005		
20	0.003	0.003			
30	0.002	0.001			
40	0.003				
50	0.004				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.001	0.001	0.000	
5	0.000	0.002	0.001	0.002	
10	0.000	0.001	0.000		
15	0.003	0.001	0.000		
20	0.001	0.000			
30	0.000	0.001			
40	0.000				
50	0.000				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.001	
5	0.000	0.000	0.008	0.001	
10	0.000	0.000	0.000		
15	0.000	0.001	0.000		
20	0.001	0.000			
30	0.001	0.000			
40	0.000				
50	0.001				

Table 20H

DeGray
1/30/71

Silver, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.002	0.000	0.000	
5	0.000	0.000	0.000	0.000	
10	0.004	0.001	0.002		
15	0.002	0.001	0.000		
20	0.001	0.000			
30	0.000	0.000			
40	0.002				
50	0.001				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.004	0.004	0.002	
5	0.002	0.006	0.001	0.009	
10	0.000	0.004	0.006		
15	0.001	0.004	0.018		
20	0.002	0.004			
30	0.002	0.004			
40	0.001	0.003			
50	0.015				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 21A

DeGray
2/20/71

pH

Depth (m)	1	7	10	12	13
0	6.7	6.9	7.1	7.1	
5	6.7	6.9		6.9	
10	6.7	6.9	6.9		
15	6.7	6.9	6.9		
20	6.7	6.9	6.9		
30	6.7	6.9			
40	6.7				
50	6.7				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	23.0	31.2	39.3	27.7	
5	28.0	31.1	28.2	31.6	
10	31.0	32.2	27.4		
15	28.5	30.5	28.1		
20	30.7	39.3	29.3		
30	30.1	36.9			
40	29.2				
50	29.7				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	8.8	9.2	8.7	9.0	
5	8.9	9.2	8.6	6.4	
10	9.2	9.4	8.6		
15	8.7	9.2	8.6		
20	8.7	9.3	8.6		
30	9.0	9.4			
40	9.1				
50	8.8				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.8	1.9	1.6	9.0	
5	1.8	1.8	1.6	6.4	
10	1.8	1.8	1.6		
15	1.8	1.8	1.6		
20	1.8	1.9	1.6		
30	1.8	1.8			
40	1.9				
50	1.9				

Table 21B

DeGray
2/20/71

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.0	2.1	2.2	2.2	
5	2.0	2.1	2.1	2.0	
10	2.0	2.0	2.3		
15	1.9	2.1	2.2		
20	2.0	2.1	2.2		
30	2.1	2.1			
40	2.0				
50	2.0				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.6	1.6	1.0	0.9	
5	1.6	1.6	1.1	1.0	
10	1.6	1.6	1.1		
15	1.6	1.6	1.1		
20	1.6	1.5	1.1		
30	1.8	1.4			
40	1.5				
50	1.5				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	1.0	1.2	0.5	1.1	
5	1.1	1.0	0.5	1.4	
10	0.8	1.0	1.4		
15	1.0	1.1	0.5		
20	1.2	1.1	0.8		
30	0.9	0.4			
40	1.4				
50	1.0				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.09	0.09	0.10	0.07	
5	0.12	0.10	0.11	0.09	
10	0.10	0.11	0.08		
15	0.13	0.13	0.11		
20	0.10	0.08	0.09		
30	0.12	0.08			
40	0.10				
50	0.09				

Table 21C

DeGray
2/20/71

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.8	1.8	1.5	
5	1.5	1.3	1.3	1.3	
10	1.8	1.8	2.0		
15	1.3	1.5	1.8		
20	1.8	1.8	1.5		
30	1.5	1.8			
40	1.5				
50	1.8				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.24	0.10	0.11	0.19	
5	0.14	0.09	0.09	0.11	
10	0.10	0.07	0.05		
15	0.07	0.07	0.19		
20	0.08	0.07	0.11		
30	0.08	0.07			
40	0.07				
50	0.07				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	0	0	3	3	
5	0	43	0	0	
10	19	2	5		
15	5	0	11		
20	10	2	0		
30	0	6			
40	18				
50	27				

Table 21D

DeGray
2/20/71

Iron, filtered (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.032	0.079	0.240	0.114	
5	0.020	0.108	0.158	0.472	
10	0.181	0.124	0.120		
15	0.033	0.098	0.195		
20	0.029	0.071	0.118		
30	0.022	0.039			
40	0.108				
50	0.160				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.076	0.040	0.004	0.010	
5	0.059	0.036	0.000	0.004	
10	0.050	0.024	0.004		
15	0.086	0.018	0.004		
20	0.062	0.024	0.001		
30	0.082	0.015			
40	0.015				
50	0.056				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.007	0.011	0.010	0.003	
5	0.013	0.009	0.014	0.009	
10	0.008	0.012	0.007		
15	0.006	0.007	0.005		
20	0.007	0.010	0.004		
30	0.006	0.004			
40	0.013				
50	0.008				

Table 21E

DeGray
2/20/71

Copper, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.010	0.013	0.009	0.011	
5	0.010	0.012	0.007	0.008	
10	0.009	0.011	0.007		
15	0.010	0.008	0.008		
20	0.010	0.009	0.008		
30	0.010	0.010			
40	0.006				
50	0.009				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.000	0.000	0.000	
5	0.006	0.003	0.003	0.004	
10	0.001	0.000	0.000		
15	0.000	0.000	0.000		
20	0.001	0.000	0.000		
30	0.000	0.000			
40	0.004				
50	0.000				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.008	0.005	0.002	0.007	
5	0.013	0.001	0.003	0.006	
10	0.009	0.004	0.004		
15	0.003	0.002	0.000		
20	0.006	0.000	0.007		
30	0.006	0.006			
40	0.000				
50	0.000				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.007	0.012	0.015	
5	0.007	0.010	0.007	0.022	
10	0.003	0.007	0.013		
15	0.002	0.012	0.007		
20	0.003	0.014	0.014		
30	0.003				
40	0.009				
50	0.004				

Table 21F

DeGray
2/20/71

Cobalt, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.002	0.003	0.003	
5	0.004	0.002	0.002	0.002	
10	0.002	0.001	0.000		
15	0.002	0.003	0.000		
20	0.003	0.002	0.001		
30	0.002	0.001			
40	0.004				
50	0.002				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.003	0.002	0.005	
5	0.005	0.001	0.003	0.007	
10	0.004	0.001	0.004		
15	0.002	0.001	0.004		
20	0.003	0.000	0.005		
30	0.003	0.002			
40	0.002				
50	0.001				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.002	0.006	0.000	
5	0.000	0.000	0.000	0.000	
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.004	0.000			
50	0.000				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.000	0.004	
5	0.000	0.000	0.000	0.000	
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.002	0.003			
30	0.002	0.002			
40	0.000	0.000			
50	0.000				

Table 21G

DeGray
2/20/71

Zinc, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.013	0.006	0.002	0.004	
5	0.006	0.003	0.001	0.005	
10	0.004	0.004	0.000		
15	0.003	0.001	0.001		
20	0.005	0.001	0.001		
30	0.006	0.002			
40	0.004				
50	0.006				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.016	0.006	0.017	0.002	
5	0.007	0.015	0.012	0.025	
10	0.009	0.013	0.003		
15	0.003	0.005	0.002		
20	0.007	0.008	0.002		
30	0.004	0.000			
40	0.017				
50	0.005				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.001	
5	0.000	0.000	0.001	0.000	
10	0.001	0.000	0.000		
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000				
50	0.001				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.003	0.003	0.001	
5	0.000	0.002	0.002	0.002	
10	0.000	0.001	0.001		
15	0.001	0.002	0.001		
20	0.001	0.001	0.003		
30	0.001	0.000			
40	0.002				
50	0.001				

Table 21H

DeGray
2/20/71

Silver, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.002	0.000	0.000	
5	0.011	0.001	0.000	0.000	
10	0.000	0.001	0.001		
15	0.000	0.001	0.000		
20	0.003	0.000	0.000		
30	0.000	0.000			
40	0.000				
50	0.001				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.001	0.002	0.001	
5	0.001	0.001	0.001	0.002	
10	0.001	0.001	0.001		
15	0.001	0.002	0.002		
20	0.003	0.002	0.001		
30	0.000	0.000			
40	0.001				
50	0.002				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 22A

DeGray
3/20/71

pH

Depth (m)	1	7	10	12	13
0	6.9	6.9	7.0	7.0	
5	6.9	6.9	6.7	6.9	
10	6.8	6.9	6.9	6.9	
15	6.8	6.8	6.9		
20	6.7	6.8	6.8		
30	6.7	6.7			
40	6.6	6.7			
50	6.6				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	27.1	30.0	24.5	25.4	
5	30.8	28.7	26.3	25.1	
10	30.0	27.6	26.5	25.9	
15	29.6	27.7	29.6		
20	29.9	25.1	29.1		
30	29.0	31.3			
40	29.5	30.3			
50	29.1				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	9.6	8.6	11.0	13.3	
5	7.5	8.3	6.9	7.4	
10	8.3	8.6	12.0	23.8	
15	7.8	9.6	8.9		
20	8.2	8.8	9.1		
30	7.4	11.4			
40	9.1	21.4			
50	8.5				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	2.0	1.9	1.6	1.6	
5	2.0	1.8	1.6	1.6	
10	1.9	1.8	1.8	1.6	
15	1.9	1.9	1.9		
20	1.9	2.0	1.9		
30	2.0	2.0			
40	2.0	2.1			
50	2.0				

Table 22B

DeGray
3/20/71

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	1.9	2.0	2.2	2.2	
5	1.9	2.0	2.1	2.1	
10	1.9	2.0	2.0	2.0	
15	1.9	1.8	2.0		
20	1.9	1.9	2.0		
30	1.9	1.9			
40	1.9	1.9			
50	1.9				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.6	1.4	2.2	2.2	
5	1.6	1.3	2.1	2.1	
10	1.6	1.4	2.0	2.0	
15	1.7	1.6	2.0		
20	1.6	1.6	2.0		
30	1.6	1.5			
40	1.6	1.5			
50	1.6				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	1.10	1.00	0.55	1.10	
5	1.12	1.15	0.35	0.80	
10	1.05	0.90	0.50	0.55	
15	0.90	1.50	0.90		
20	1.40	1.35	1.00		
30	1.30	1.25			
40	1.80	1.39			
50	1.35				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.10	0.10	0.10	0.08	
5	0.09	0.13	0.10	0.09	
10	0.10	0.08	0.08	0.10	
15	0.11	0.11	0.10		
20	0.12	0.10	0.03		
30	0.11	0.09			
40	0.09	0.09			
50	0.13				

Table 22C

DeGray
3/20/71

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.5	1.8	1.8	
5	1.3	2.0	1.8	1.8	
10	1.5	2.0	1.5	1.8	
15	1.3	1.8	1.5		
20	2.0	1.5	1.3		
30	1.8	2.0			
40	1.8	1.8			
50	1.5				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.04	0.05	0.05	0.04	
5	0.06	0.04	0.03	0.04	
10	0.04	0.04	0.04	0.09	
15	0.06	0.03	0.07		
20	0.04	0.07	0.05		
30	0.05	0.05			
40	0.05	0.05			
50	0.08				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	12	9	6	8	
5	5	17	10	6	
10	14	11	2	8	
15	13	10	14		
20	9	12	15		
30	6	5			
40	9	12			
50	11				

Table 22D

DeGray
3/20/71

Iron, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.170	0.095	0.010	0.010	
5	0.096	0.079	0.014	0.035	
10	0.058	0.073	0.059	0.018	
15	0.109	0.098	0.070		
20	0.116	0.176	0.083		
30	0.192	0.119			
40	0.212	0.131			
50	0.238				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.050	0.034	0.090	0.102	
5	0.030	0.040	0.090	0.118	
10	0.037	0.040	0.054	0.170	
15	0.041	0.054	0.052		
20	0.051	0.090	0.047		
30	0.048	0.048			
40	0.082	0.080			
50	0.670				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.049	0.033	0.000	0.002	
5	0.027	0.023	0.001	0.017	
10	0.019	0.020	0.025	0.007	
15	0.029	0.035	0.036		
20	0.040	0.059	0.041		
30	0.064	0.047			
40	0.074	0.072			
50	0.090				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.027	0.011	0.013	0.007	
5	0.013	0.016	0.013	0.011	
10	0.019	0.015	0.013	0.022	
15	0.017	0.022	0.012		
20	0.014	0.021	0.016		
30	0.023	0.020			
40	0.029	0.014			
50	0.058				

Table 22E

DeGray
3/20/71

Copper, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.006	0.009	0.001	0.001	
5	0.002	0.006	0.000	0.011	
10	0.003	0.005	0.005	0.000	
15	0.002	0.006	0.007		
20	0.006	0.003	0.006		
30	0.017	0.001			
40	0.005	0.003			
50	0.000				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.006	0.000	0.000	0.000	
5	0.000	0.000	0.000	0.001	
10	0.001	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.001	0.005	0.001		
30	0.011	0.000			
40	0.000	0.000			
50	0.000				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.010	0.012	0.009	0.009	
5	0.009	0.016	0.007	0.011	
10	0.011	0.011	0.011	0.012	
15	0.012	0.009	0.012		
20	0.010	0.007	0.037		
30	0.010	0.011			
40	0.014	0.007			
50	0.013				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.005	0.003	0.004	0.000	
5	0.000	0.003	0.004	0.001	
10	0.001	0.002	0.000	0.000	
15	0.000	0.004	0.004		
20	0.010	0.010	0.000		
30	0.001	0.005			
40	0.003	0.000			
50	0.006				

Table 22F

DeGray
3/20/71

Cobalt, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.003	0.004	
5	0.003	0.002	0.002	0.000	
10	0.002	0.002	0.002	0.001	
15	0.002	0.001	0.001		
20	0.003	0.002	0.001		
30	0.002	0.001			
40	0.002	0.003			
50	0.003				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.002	0.004	
5	0.002	0.000	0.001	0.000	
10	0.000	0.004	0.003	0.001	
15	0.000	0.000	0.002		
20	0.000	0.002	0.001		
30	0.003	0.002			
40	0.000	0.000			
50	0.000				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.002	0.006	0.000	
5	0.000	0.000	0.000	0.000	
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.004	0.000			
40	0.000	0.000			
50	0.000				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.000	0.004	
5	0.000	0.000	0.000	0.000	
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.002	0.003	0.000		
30	0.002	0.002			
40	0.000	0.000			
50	0.000				

Table 22G

DeGray
3/20/71

Zinc, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.024	0.007	0.013	0.004	
5	0.006	0.004	0.000	0.006	
10	0.006	0.010	0.007	0.000	
15	0.009	0.009	0.007		
20	0.023	0.021	0.010		
30	0.043	0.005			
40	0.074	0.006			
50	0.010				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.016	0.000	0.000	0.000	
5	0.005	0.000	0.000	0.000	
10	0.009	0.000	0.000	0.000	
15	0.002	0.002	0.004		
20	0.006	0.006	0.010		
30	0.003	0.000			
40	0.007	0.003			
50	0.005				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.000	0.001	
5	0.001	0.000	0.000	0.000	
10	0.001	0.000	0.000	0.000	
15	0.001	0.000	0.001		
20	0.000	0.001	0.001		
30	0.001	0.001			
40	0.001	0.001			
50	0.001				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.000	0.002	0.001	
5	0.000	0.005	0.003	0.001	
10	0.001	0.001	0.003	0.002	
15	0.002	0.003	0.001		
20	0.003	0.003	0.005		
30	0.006	0.003			
40	0.002	0.004			
50	0.002				

Table 22H

DeGray
3/20/71
Silver, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.001	0.001	
5	0.001	0.001	0.000	0.000	
10	0.001	0.000	0.000	0.002	
15	0.001	0.001	0.001		
20	0.000	0.001	0.000		
30	0.001	0.001			
40	0.001	0.000			
50	0.001				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.003	0.000	0.004	
5	0.000	0.004	0.000	0.006	
10	0.000	0.000	0.000	0.004	
15	0.009	0.000	0.003		
20	0.002	0.018	0.003		
30	0.003	0.000			
40	0.002	0.003			
50	0.002				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 23A

DeGray
4/24/71

pH

Depth (m)	1	7	10	12	13
0	7.1	7.0	7.1	7.1	7.0
5	7.1	7.0	7.1	6.7	6.9
10	6.9	6.9	6.7	6.5	
15	6.9	6.9	6.7		
20	6.8	6.7	6.7		
30	6.7	6.7			
40	6.7	6.7			
50	6.7				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	32	32	29	39	38
5	39	30	28	34	36
10	32	29	27	29	
15	30	30	30		
20	32	31	31		
30	29	33			
40	31	31			
50	21				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	8.8	8.8	8.4	12.0	12.0
5	8.8	9.0	8.8	10.2	11.2
10	9.0	8.8	8.4	9.0	
15	9.0	9.0	9.0		
20	9.0	9.0	9.2		
30	9.0	9.2			
40	9.0	9.2			
50	9.2				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	2.2	1.9	1.7	2.0	2.1
5	2.0	1.9	1.8	2.0	2.0
10	2.2	2.0	1.8	1.7	
15	2.1	2.0	1.9		
20	2.1	2.0	1.9		
30	2.0	2.1			
40	2.1	2.1			
50	2.2				

Table 23B

DeGray
4/24/71

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.0	2.1	2.2	2.1	1.9
5	2.0	2.0	2.2	2.3	1.6
10	1.9	1.9	2.1	2.2	
15	1.9	1.9	2.0		
20	1.9	2.0	2.0		
30	1.9	2.0			
40	1.9	1.9			
50	1.9				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.4	1.3	0.9	0.7	0.8
5	1.4	1.4	0.9	0.7	1.1
10	1.4	1.4	1.0	0.8	
15	1.4	1.3	1.1		
20	1.4	1.3	1.2		
30	1.5	1.4			
40	1.5	1.4			
50	1.5				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	1.0	1.7	1.3	1.0	1.1
5	2.3	1.9	1.3	1.2	1.7
10	1.6	2.6	1.2	1.0	
15	2.9	2.1	2.4		
20	4.9	2.9	2.5		
30	3.6	2.6			
40	2.2	1.9			
50	2.1				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.08	0.08	0.10	0.09	0.06
5	0.08	0.10	0.07	0.09	0.11
10	0.11	0.11	0.10	0.11	
15	0.12	0.10	0.07		
20	0.11	0.12	0.08		
30	0.09	0.06			
40	0.12	0.09			
50	0.08				

Table 23C

DeGray
4/24/71

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	2.3	2.5	1.8	2.3	2.3
5	1.3	1.8	2.3	2.5	1.5
10	2.0	1.8	1.8		2.0
15	2.0	2.0	2.3		
20	2.3	2.5	2.0		
30	2.8	2.3			
40	2.0	1.5			
50	2.3				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.17	0.11	0.12	0.23	0.13
5	0.21	0.11	0.05	0.15	0.21
10	0.29	0.19	0.14	0.08	
15	0.15	0.13	0.07		
20	0.11	0.09	0.21		
30	0.19	0.10			
40	0.11	0.24			
50	0.17				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	8	7	10	9	14
5	11	10	5	13	9
10	5	7	7	7	
15	10	8	5		
20	10	12	6		
30	9	13			
40	2	7			
50	4				

Table 23D

DeGray
4/24/71

Iron, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.098	0.070	0.025	0.017	0.011
5	0.092	0.128	0.047	0.057	0.014
10	0.066	0.088	0.040	0.136	
15	0.077	0.099	0.104		
20	0.166	0.162	0.182		
30	0.224	0.640			
40	0.211	0.430			
50	0.390				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.059	0.055	0.037	0.070	0.385
5	0.088	0.036	0.056	0.059	0.732
10	0.054	0.026	0.067	0.118	
15	0.072	0.054	0.144		
20	0.084	0.062	0.150		
30	0.080	0.168			
40	0.086	0.256			
50	0.355				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.010	0.005	0.001	0.007	0.008
5	0.004	0.005	0.014	0.040	0.012
10	0.008	0.006	0.009	0.236	
15	0.004	0.010	0.122		
20	0.022	0.083	0.258		
30	0.062	0.335			
40	0.116	0.416			
50	0.666				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.009	0.011	0.005	0.008	0.008
5	0.013	0.010	0.018	0.021	0.012
10	0.013	0.010	0.026	0.038	
15	0.032	0.036	0.050		
20	0.059	0.050	0.035		
30	0.068	0.057			
40	0.055	0.046			
50	0.113				

Table 23E

DeGray
4/24/71

Copper, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.015	0.012	0.008	0.009	0.007
5	0.011	0.024	0.014	0.007	0.013
10	0.008	0.013	0.010	0.009	
15	0.006	0.009	0.010		
20	0.015	0.016	0.014		
30	0.013	0.011			
40	0.011	0.015			
50	0.011				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.010	0.015	0.006	0.008	0.011
5	0.012	0.007	0.009	0.008	0.012
10	0.004	0.005	0.015	0.009	
15	0.000	0.004	0.011		
20	0.002	0.001	0.004		
30	0.013	0.007			
40	0.006	0.011			
50	0.011				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.008	0.018	0.015	0.005	0.049
5	0.000	0.023	0.007	0.022	0.003
10	0.000	0.010	0.002	0.009	
15	0.006	0.004	0.002		
20	0.004	0.001	0.289		
30	0.000	0.007			
40	0.000	0.049			
50	0.052				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 23F

DeGray
4/24/71

Cobalt, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.002	0.002	0.001	0.001
5	0.001	0.002	0.002	0.002	0.003
10	0.002	0.002	0.002	0.001	
15	0.003	0.003	0.003		
20	0.001	0.002	0.004		
30	0.002	0.003			
40	0.004	0.002			
50	0.003				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.001
5	0.001	0.000	0.000	0.000	0.000
10	0.001	0.000	0.004	0.001	
15	0.001	0.000	0.000		
20	0.001	0.000	0.001		
30	0.000	0.000			
40	0.000	0.002			
50	0.001				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.000	0.003	0.001
5	0.001	0.002	0.046	0.000	0.002
10	0.004	0.000	0.003	0.002	
15	0.002	0.003	0.003		
20	0.002	0.006	0.000		
30	0.003	0.000			
40	0.000	0.002			
50	0.005				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.005	0.005	0.003	0.005	0.007
5	0.006	0.003	0.002	0.005	0.009
10	0.005	0.003	0.010	0.004	
15	0.003	0.004	0.004		
20	0.007	0.004	0.003		
30	0.006	0.005			
40	0.005	0.003			
50	0.005				

Table 23G

DeGray
4/24/71

Zinc, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.003	0.000	0.001	0.005
5	0.000	0.007	0.004	0.003	0.001
10	0.001	0.007	0.000	0.003	
15	0.000	0.001	0.000		
20	0.002	0.002	0.001		
30	0.002	0.006			
40	0.001	0.003			
50	0.006				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.008	0.001	0.000	0.002	0.002
5	0.005	0.001	0.000	0.007	0.015
10	0.003	0.001	0.000	0.001	
15	0.000	0.000	0.001		
20	0.000	0.000	0.000		
30	0.001	0.053			
40	0.000	0.001			
50	0.005				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.029	0.000	0.002	0.001
5	0.000	0.002	0.009	0.001	0.008
10	0.000	0.003	0.003	0.006	
15	0.000	0.000	0.000		
20	0.002	0.000	0.000		
30	0.002	0.002			
40	0.000	0.001			
50	0.004				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.002	0.002	0.004	0.004
5	0.003	0.002	0.002	0.007	0.009
10	0.003	0.001	0.005	0.004	
15	0.003	0.003	0.003		
20	0.002	0.002	0.006		
30	0.003	0.003			
40	0.002	0.003			
50	0.002				

Table 23H

DeGray
4/24/71

Silver, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000			
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.040	0.009	0.010	0.014	0.028
5	0.180	0.010	0.012	0.014	0.010
10	0.034	0.014	0.010	0.120	
15	0.019	0.029	0.009		
20	0.014	0.008	0.014		
30	0.013	0.039			
40	0.009	0.008			
50	0.010				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 24A

DeGray
5/27/71

pH

Depth (m)	1	7	10	12	13
0	7.0	7.0	7.1	7.3	7.4
5	6.7	7.1	6.9	6.9	6.9
10	6.7	6.7	6.5	6.7	
15	6.6	6.6	6.5		
20	6.6	6.5	6.5		
30	6.6	6.5			
40	6.5	6.5			
50	6.5				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	31	32	33	41	48
5	32	30	33	40	48
10	30	31	29	35	
15	33	31	28		
20	30	34	34		
30	32	45			
40	32	43			
50	38				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	8.5	8.6	8.9	11.3	12.9
5	7.7	7.7	8.2	11.2	12.4
10	8.3	8.8	8.8	9.0	
15	8.4	10.0	9.1		
20	8.5	9.2	9.2		
30	7.4	9.0			
40	8.5	9.4			
50	10.2				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.8	1.8	1.8	1.9	2.0
5	1.8	1.8	1.8	2.0	2.0
10	1.8	1.8	1.7	1.8	
15	1.9	1.8	1.8		
20	1.8	1.9	1.8		
30	1.9	1.9			
40	1.9	2.0			
50	2.1				

Table 24B

DeGray
5/27/71

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.0	2.0	2.1	2.0	1.9
5	2.0	2.0	2.1	2.0	2.1
10	1.9	2.1	2.3	2.2	
15	1.9	2.0	2.1		
20	1.8	1.9	2.0		
30	1.9	1.9			
40	1.9	2.0			
50	1.9				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.4	1.3	1.2	1.2	0.9
5	1.4	1.4	1.2	1.0	1.0
10	1.5	1.5	1.3	1.0	
15	1.6	1.4	1.3		
20	1.6	1.5	1.3		
30	1.6	1.6			
40	1.6	1.6			
50	2.0				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	0.3	0.2	0.3	0.1	0.1
5	0.2	0.4	0.4	0.1	0.2
10	1.1	1.1	0.5	1.4	
15	1.4	1.0	0.7		
20	1.2	0.8	0.9		
30	1.1	1.2			
40	1.6	3.7			
50	1.4				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.07	0.08	0.09	0.14	0.07
5	0.11	0.09	0.07	0.07	0.09
10	0.09	0.09	0.09		
15	0.09	0.09	0.12		
20	0.08	0.10	0.12		
30	0.11	0.16	0.12		
40	0.07				
50	0.09				

Table 24C

DeGray
5/27/71

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	2.0	2.0	2.0	2.0	2.1
5	2.0	2.2	2.1	1.8	1.9
10	2.0	2.0	2.0	2.1	
15	1.9	1.9	2.1		
20	1.8	1.9	2.0		
30	1.8	2.0			
40	1.9	2.1			
50	1.9				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.13	0.10	0.11	0.12	0.19
5	0.13	0.12	0.10	0.16	0.11
10	0.09	0.08	0.08	0.07	
15	0.14	0.06	0.08		
20	0.07	0.06	0.12		
30	0.04	0.07			
40	0.09	0.13			
50	0.08				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	9	4	0	4	0
5	1	0	1	0	6
10	8	0	0	0	
15	13	3	0		
20	3	3	0		
30	0	0			
40	5	2			
50	0				

Table 24D

DeGray
5/27/71

Iron, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.024	0.020	0.038	0.007	0.029
5	0.027	0.031	0.027	0.051	0.021
10	0.078	0.067	0.045	1.792	
15	0.075	0.111	0.735		
20	0.157	0.169	0.840		
30	0.179	0.675			
40	0.220	4.64			
50	0.680				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.023	0.013	0.010	0.022	0.017
5	0.018	0.016	0.024	0.037	0.047
10	0.031	0.013	0.021	0.190	
15	0.020	0.017	0.016		
20	0.019	0.031	0.066		
30	0.020	0.081			
40	0.046	0.082			
50	0.410				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.001	0.007	0.003	0.013
5	0.005	0.007	0.004	0.016	0.007
10	0.005	0.007	0.113	1.256	
15	0.004	0.042	0.521		
20	0.004	0.243	0.933		
30	0.043	0.959			
40	0.206	2.179			
50	2.574				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.078	0.010	0.010	0.013	0.016
5	0.031	0.020	0.012	0.037	0.069
10	0.021	0.036	0.031	0.024	
15	0.024	0.080	0.000		
20	0.049	0.059	0.008		
30	0.101	0.009			
40	0.130	0.009			
50	0.036				

Table 24E

DeGray
5/27/71

Copper, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.005	0.006	0.008	0.003	0.018
5	0.005	0.010	0.008	0.011	0.007
10	0.011	0.011	0.011	0.009	
15	0.009	0.018	0.014		
20	0.012	0.012	0.018		
30	0.011	0.013			
40	0.007	0.010			
50	0.018				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.021	0.012	0.013	0.014	0.018
5	0.015	0.015	0.010	0.012	0.016
10	0.016	0.014	0.010	0.018	
15	0.019	0.015	0.008		
20	0.014	0.011	0.013		
30	0.014	0.011			
40	0.017	0.013			
50	0.012				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.004	0.004	0.000	0.012
5	0.009	0.020	0.026	0.010	0.003
10	0.016	0.009	0.009	0.006	
15	0.012	0.015	0.006		
20	0.021	0.006	0.007		
30	0.010	0.010			
40	0.000	0.000			
50	0.011				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.002	0.016	0.006
5	0.000	0.000	0.043	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.003	0.000		
20	0.000	0.000	0.000		
30	0.002	0.000			
40	0.000	0.000			
50	0.000				

Table 24F

DeGray
5/27/71

Cobalt, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.001	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.001		
20	0.000	0.000	0.001		
30	0.000	0.000			
40	0.000	0.002			
50	0.000				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.002	0.000	0.000	0.000
5	0.000	0.003	0.000	0.001	0.001
10	0.001	0.002	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.002	0.000			
40	0.000	0.000			
50	0.001				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.003	0.004	0.003	0.000
5	0.001	0.005	0.001	0.001	0.001
10	0.000	0.000	0.001	0.002	
15	0.000	0.001	0.002		
20	0.000	0.004	0.002		
30	0.051	0.001			
40	0.003	0.001			
50	0.002				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.005	0.000	0.000	0.000	0.002
5	0.004	0.000	0.000	0.000	0.001
10	0.011	0.001	0.000	0.001	
15	0.000	0.001	0.000		
20	0.001	0.000	0.001		
30	0.006	0.000			
40	0.008	0.000			
50	0.000				

Table 24G

DeGray
5/27/71

Zinc, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.003	0.000	0.000
5	0.000	0.041	0.000	0.000	0.000
10	0.000	0.003	0.000	0.000	
15	0.000	0.014	0.000		
20	0.001	0.008	0.000		
30	0.013	0.004			
40	0.009	0.008			
50	0.014				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.007	0.006	0.007	0.006	0.009
5	0.006	0.005	0.007	0.006	0.006
10	0.007	0.012	0.002	0.009	
15	0.008	0.024	0.002		
20	0.007	0.032	0.004		
30	0.014	0.004			
40	0.024	0.010			
50	0.018				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.002	0.000	0.000
10	0.000	0.000	0.001	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.001		
30	0.004	0.002			
40	0.023	0.003			
50	0.026				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.007	0.002	0.001	0.001	0.003
5	0.016	0.001	0.001	0.002	0.002
10	0.004	0.001	0.000	0.002	
15	0.002	0.001	0.001		
20	0.007	0.001	0.001		
30	0.014	0.001			
40	0.013	0.003			
50	0.039				

Table 24H

DeGray
5/27/71

Silver, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.001	0.013	0.013	0.002
5	0.002	0.021	0.002	0.002	0.003
10	0.003	0.003	0.001	0.002	
15	0.005	0.003	0.003		
20	0.006	0.002	0.001		
30	0.002	0.003			
40	0.002	0.003			
50	0.004				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.000	0.003	0.000	0.001
5	0.005	0.000	0.000	0.000	0.000
10	0.008	0.000	0.000	0.000	
15	0.002	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.003			
40	0.001	0.001			
50	0.001				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 25A

DeGray
6/3/71

pH

Depth (m)	1	7	10	12	13
0	7.3	7.3	7.2	7.3	7.5
5	7.3	7.1	7.1	6.9	7.0
10	6.7	6.7	6.5	6.7	
15	6.7	6.6	6.6		
20	6.7	6.5	6.5		
30	6.6	6.5			
40	6.7	6.5			
50	6.6				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	32	32	33	36	48
5	33	32	33	41	49
10	31	30	33	41	
15	31	31	37		
20	32	32	36		
30	31	36			
40	32	37			
50	48				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	7.8	8.0	8.6	9.9	13.4
5	8.0	8.1	8.8	10.7	13.8
10	8.0	7.9	8.2	9.4	
15	8.3	8.1	8.4		
20	8.2	8.5	8.6		
30	8.4	8.8			
40	8.3	9.8			
50	9.4				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.7	1.7	1.7	2.0	2.0
5	1.7	1.6	1.7	1.9	1.9
10	1.9	1.8	1.6	1.8	
15	1.7	1.8	1.7		
20	1.9	1.8	1.7		
30	1.8	1.8			
40	1.9	2.1			
50	2.1				

Table 25B

DeGray
6/3/71
Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.2	2.3	2.4	2.4	2.3
5	2.2	2.5	2.4	2.3	2.3
10	2.1	2.3	2.4	2.4	
15	2.3	2.2	2.3		
20	2.1	2.2	2.2		
30	2.1	2.9			
40	2.1	2.2			
50	1.2				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.3	1.4	1.1	0.9	0.9
5	1.3	1.3	1.1	1.0	0.9
10	1.5	1.4	1.0	0.9	
15	1.5	1.3	1.3		
20	1.4	1.4	1.3		
30	1.4	1.6			
40	1.4	1.6			
50	1.6				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	0.7	0.3	0.3	0.3	0.1
5	0.5	0.4	0.6	0.1	1.1
10	1.2	1.0	1.0	3.2	
15	1.1	0.9	1.2		
20	1.2	0.9	1.4		
30	1.3	1.0			
40	0.3	4.9			
50	1.5				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.09	0.08	0.09	0.11	0.08
5	0.09	0.08	0.13	0.06	0.09
10	0.07	0.09	0.09	0.22	
15	0.07	0.11	0.15		
20	0.11	0.08	0.11		
30	0.09	0.16			
40	0.08	0.26			
50	0.11				

Table 25C

DeGray
6/3/71

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	1.9	1.9	1.8	1.8	1.9
5	1.9	2.0	1.9	1.9	1.8
10	1.8	1.8	1.8	1.9	
15	1.7	1.8	1.8		
20	1.8	1.9	1.7		
30	1.8	1.8			
40	1.7	2.0			
50	1.9				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.13	0.11	0.10	0.11	0.18
5	0.14	0.09	0.08	0.11	0.12
10	0.08	0.12	0.05	0.11	
15	0.06	0.11	0.06		
20	0.08	0.11	0.06		
30	0.06	0.07			
40	0.06	0.05			
50	0.06				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	5.2	6.9	5.5	4.8	6.8
5	7.1	5.6	5.6	6.2	6.2
10	6.2	4.2	7.5	6.5	
15	4.9	5.0	7.2		
20	5.4	5.3	6.6		
30	5.5	6.2			
40	5.6	8.8			
50	8.7				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	11	12	13	0	0
5	17	0	7	8	0
10	9	9	18	5	
15	14	14	0		
20	0	3	5		
30	0	0			
40	0	8			
50	2				

Table 25D

DeGray
6/3/71

Iron, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.022	0.028	0.004	0.024	0.006
5	0.027	0.025	0.019	0.038	0.020
10	0.062	0.032	0.224	3.00	
15	0.008	0.074	1.60		
20	0.110	0.093	1.70		
30	0.121	0.700			
40	0.200	5.70			
50	2.60				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.008	0.002	0.008	0.008	0.008
5	0.013	0.011	0.010	0.020	0.039
10	0.013	0.015	0.061	0.019	
15	0.010	0.018	0.011		
20	0.022	0.048	0.018		
30	0.310	0.138			
40	0.038	0.102			
50	0.385				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.006	0.010	0.000	0.012	0.000
5	0.000	0.000	0.003	0.002	0.001
10	0.001	0.001	0.496	1.573	
15	0.004	0.015	0.986		
20	0.001	0.200	1.085		
30	0.057	1.094			
40	0.198	3.249			
50	3.777				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0		0.026			0.037
5	0.018	0.019	0.020	0.029	0.095
10	0.032		0.005	0.005	
15	0.030	0.059	0.006		
20	0.045	0.066	0.007		
30	0.094	0.023			
40	0.128	0.014			
50	0.045				

Table 25E

DeGray
6/3/71

Copper, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.014	0.011	0.001	0.011	0.005
5	0.018	0.013	0.011	0.017	0.012
10	0.018	0.004	0.007	0.007	
15	0.011	0.015	0.004		
20	0.014	0.026	0.004		
30	0.013	0.015			
40	0.012	0.008			
50	0.011				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0		0.010			0.011
5	0.018	0.009	0.012	0.009	0.013
10	0.018		0.008	0.007	
15	0.011	0.014	0.010		
20	0.014	0.013	0.010		
30	0.013	0.011			
40	0.012	0.009			
50	0.011				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.002	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0		0.178			0.215
5	0.000	0.002	0.000	0.001	0.004
10	0.202		0.001	0.003	
15	0.192	0.001	0.007		
20	0.000	0.003	0.000		
30	0.009	0.006			
40	0.000	0.004			
50	0.006				

Table 25F

DeGray
6/3/71

Cobalt, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.002				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0		0.003			0.002
5	0.002	0.002	0.002	0.002	0.002
10	0.005		0.002	0.002	
15	0.004	0.002	0.002		
20	0.003	0.002	0.001		
30	0.004	0.002			
40	0.004	0.003			
50	0.003				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.001	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.001	0.000			
40	0.001	0.000			
50	0.000				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0		0.000			0.000
5	0.002	0.002	0.001	0.001	0.001
10	0.000		0.008	0.001	
15	0.000	0.003	0.001		
20	0.002	0.001	0.001		
30	0.003	0.001			
40	0.002	0.001			
50	0.000				

Table 25G

DeGray
6/3/71

Zinc, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.001	0.000	0.004	0.000
5	0.000	0.000	0.001	0.003	0.001
10	0.000	0.000	0.001	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.002		
30	0.004	0.000			
40	0.000	0.000			
50	0.006				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0		0.004			0.004
5	0.006	0.002	0.003	0.002	0.009
10	0.007		0.002	0.002	
15	0.003	0.005	0.007		
20	0.003	0.006	0.002		
30	0.003	0.005			
40	0.005	0.007			
50	0.021				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.001	0.001	0.000	0.002
5	0.000	0.000	0.000	0.002	0.001
10	0.001	0.000	0.001	0.002	
15	0.000	0.001	0.000		
20	0.001	0.002	0.001		
30	0.001	0.001			
40	0.001	0.002			
50	0.003				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0		0.002			0.003
5	0.003	0.002	0.001	0.002	0.003
10	0.003		0.043	0.004	
15	0.002	0.003	0.002		
20	0.002	0.004	0.001		
30	0.003	0.003			
40	0.003	0.003			
50	0.007				

Table 25H

DeGray
6/3/71

Silver, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.001	0.007	0.018	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.002	0.000	0.000		
20	0.000	0.000	0.000		
30	0.002	0.000			
40	0.000	0.000			
50	0.000				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.007			0.008
5	0.009	0.009	0.011	0.005	0.000
10	0.014		0.008	0.009	
15	0.014	0.012	0.032		
20	0.006	0.013	0.023		
30	0.004	0.006			
40	0.028	0.018			
50	0.038				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 26A

DeGray
6/11/71

pH

Depth (m)	1	7	10	12	13
0	7.1	7.3	7.3	7.3	7.3
5	7.3	7.3	7.1	6.7	6.9
10	6.7	6.7	6.7	6.7	
15	6.7	6.7	6.7		
20	6.6	6.6	6.7		
30	6.5	6.6			
40	6.5	6.7			
50	6.7				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	30	32	32	38	51
5	32	31	34	42	52
10	30	32	32	41	
15	29	31	35		
20	30	33	35		
30	31	36			
40	30	40			
50	42				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	7.9	7.8	8.5	10.3	15.0
5	8.0	8.0	9.0	12.2	15.0
10	7.8	7.7	7.9	8.9	
15	8.0	8.1	8.8		
20	8.0	8.6	8.8		
30	8.3	10.6			
40	8.0	12.4			
50	8.2				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.8	1.8	1.8	1.9	2.2
5	1.8	1.8	1.7	2.1	2.3
10	1.9	1.7	1.7	1.9	
15	1.9	1.8	1.8		
20	1.9	1.8	1.9		
30	1.9	2.0			
40	1.9	2.2			
50	2.4				

Table 26B

DeGray
6/11/71
Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.3	2.3	2.4	2.3	2.4
5	2.2	2.3	2.5	2.3	2.4
10	2.2	2.2	2.5	2.5	
15	2.1	2.2	2.2		
20	2.2	2.3	2.4		
30	2.1	2.2			
40	2.2	2.2			
50	2.2				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.6	1.6	1.4	1.4	1.0
5	1.5	1.5	1.4	1.2	1.2
10	1.6	1.6	1.3	1.1	
15	1.6	1.4	1.3		
20	1.6	1.7	1.7		
30	1.7	1.7			
40	1.9	1.9			
50	1.8				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.08	0.09	0.09	0.09	0.07
5	0.11	0.09	0.08	0.09	0.10
10	0.08	0.08	0.15	0.29	
15	0.10	0.08	0.19		
20	0.09	0.09	0.24		
30	0.11	0.14			
40	0.10	0.31			
50	0.18				

Table 26C

DeGray
6/11/71

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	2.2	2.3	2.3	2.3	2.1
5	2.1	2.2	2.2	2.2	2.2
10	2.1	2.1	1.9	2.2	
15	2.1	2.1	2.0		
20	2.0	2.1	1.9		
30	2.0	1.9			
40	2.0	2.1			
50	2.1				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.05	0.06	0.07	0.08	0.09
5	0.08	0.06	0.05	0.05	0.05
10	0.03	0.04	0.07	0.04	
15	0.04	0.04	0.05		
20	0.04	0.04	0.05		
30	0.04	0.05			
40	0.05	0.04			
50	0.04				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	4.0	4.2	3.5	3.3	3.7
5	3.8	2.8	5.2	5.1	6.5
10	4.4	4.2	3.0	6.1	
15	3.8	2.0	4.5		
20	5.3	4.0	5.6		
30	5.0	4.5			
40	5.8	6.5			
50	8.0				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	9	13	12	7	12
5	21	1	18	7	0
10	13	29	3	16	
15	18	17	11		
20	21	10	17		
30	4	13			
40	9	11			
50	27				

Table 26D

DeGray
6/11/71

Iron, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.015	0.017	0.030	0.016	0.010
5	0.037	0.041	0.017	0.040	0.094
10	0.097	0.070	0.340	3.600	
15	0.150	0.090	1.800		
20	0.137	0.250	2.000		
30	0.183	0.840			
40	0.150	6.36			
50	7.32				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.023	0.006	0.016	0.029	0.034
5	0.013	0.014	0.017	0.030	0.128
10	0.017	0.015	0.013	0.026	
15	0.019	0.016	0.012		
20	0.031	0.040	0.010		
30	0.051	0.021			
40	0.061	0.030			
50	0.182				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.008	0.007	0.017	0.020
5	0.000	0.000	0.009	0.019	0.750
10	0.024	0.008	0.660	2.008	
15	0.000	0.064	1.144		
20	0.017	0.440	1.262		
30	0.035	1.312			
40	0.204	4.20			
50	5.63				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.011	0.009	0.018	0.022	0.029
5	0.020	0.013	0.031	0.071	0.094
10	0.025	0.016	0.006	0.008	
15	0.031	0.056	0.008		
20	0.042	0.036	0.003		
30	0.130	0.017			
40	0.202	0.015			
50	0.043				

Table 26E

DeGray
6/11/71

Copper, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.009	0.020	0.011	0.020	0.012
5	0.013	0.015	0.013	0.013	0.029
10	0.022	0.017	0.012	0.011	
15	0.016	0.020	0.007		
20	0.018	0.019	0.012		
30	0.012	0.007			
40	0.009	0.012			
50	0.004				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.016	0.008	0.015	0.023	0.014
5	0.023	0.012	0.011	0.020	0.014
10	0.018	0.011	0.014	0.012	
15	0.014	0.016	0.020		
20	0.012	0.016	0.013		
30	0.022	0.016			
40	0.012	0.018			
50	0.013				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.021	0.005	0.008	0.000	0.003
5	0.000	0.010	0.008	0.006	0.009
10	0.007	0.007	0.010	0.000	
15	0.003	0.007	0.010		
20	0.000	0.000	0.007		
30	0.007	0.005			
40	0.004	0.000			
50	0.000				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.020	0.010	0.008	0.008	0.012
5	0.011	0.007	0.008	0.007	0.013
10	0.008	0.004	0.010	0.007	
15	0.007	0.006	0.010		
20	0.010	0.008	0.007		
30	0.013	0.008			
40	0.013	0.014			
50	0.012				

Table 26F

DeGray
6/11/71

Cobalt, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.008	0.003	0.005	0.003	0.001
5	0.006	0.002	0.001	0.003	0.004
10	0.003	0.002	0.002	0.004	
15	0.003	0.001	0.004		
20	0.002	0.002	0.004		
30	0.004	0.001			
40	0.003	0.008			
50	0.008				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.001	0.000	0.000	0.001
10	0.001	0.000	0.000	0.000	
15	0.001	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000				
50	0.000				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.004	0.000	0.005	0.000
5	0.003	0.001	0.003	0.005	0.005
10	0.005	0.000	0.006	0.004	
15	0.003	0.004	0.003		
20	0.004	0.004	0.001		
30	0.002	0.003			
40	0.004	0.002			
50	0.002				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.003	0.002	0.004	0.010
5	0.002	0.003	0.002	0.002	0.007
10	0.005	0.001	0.003	0.002	
15	0.003	0.003	0.002		
20	0.001	0.001	0.001		
30	0.004	0.002			
40	0.002	0.002			
50	0.001				

Table 26G

DeGray
6/11/71

Zinc, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.008	0.007	0.016	0.005	0.002
5	0.003	0.009	0.004	0.014	0.021
10	0.015	0.009	0.020	0.000	
15	0.018	0.006	0.003		
20	0.009	0.004	0.001		
30	0.016	0.000			
40	0.035	0.003			
50	0.000				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.006	0.003	0.016	0.011	0.020
5	0.014	0.006	0.017	0.022	0.026
10	0.012	0.006	0.010	0.006	
15	0.007	0.007	0.012		
20	0.009	0.007	0.007		
30	0.012	0.006			
40	0.005	0.012			
50	0.007				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.003	0.002	0.001	0.001
5	0.000	0.001	0.001	0.001	0.004
10	0.004	0.002	0.002	0.002	
15	0.003	0.001	0.001		
20	0.002	.0002	0.001		
30	0.002	0.002			
40	0.001	0.008			
50	0.008				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.001	0.001	0.005	0.001
5	0.003	0.001	0.001	0.003	0.025
10	0.004	0.013	0.000	0.001	
15	0.000	0.001	0.004		
20	0.001	0.002	0.000		
30	0.002	0.003			
40	0.001	0.004			
50	0.000				

Table 26H

DeGray
6/11/71

Silver, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.007	0.000	0.002	0.003	0.001
5	0.000	0.001	0.000	0.000	0.002
10	0.000	0.001	0.001	0.001	
15	0.000	0.001	0.002		
20	0.001	0.002	0.001		
30	0.001	0.001			
40	0.001	0.004			
50	0.002				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.007	0.005	0.001	0.000	0.000
5	0.007	0.018	0.000	0.004	0.005
10	0.002	0.002	0.004	0.000	
15	0.012	0.000	0.000		
20	0.000	0.000	0.000		
30	0.003	0.000			
40	0.002	0.000			
50	0.000				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 27A

DeGray
6/18/71

pH

Depth (m)	1	7	10	12	13
0	7.4	7.3	7.3	7.1	7.3
5	7.3	7.1	7.0	6.7	6.9
10	6.9	6.7	6.7	6.9	
15	6.7	6.7	6.7		
20	6.7	6.7	6.7		
30	6.6	6.8			
40	6.6				
50	6.9				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	30	33	36	39	49
5	29	30	31	40	48
10	31	29	31	36	
15	30	30	34		
20	30	32	35		
30	31	33			
40	32	50			
50	52				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	8.0	8.0	9.3	12.2	16.1
5	7.9	31.2	10.4	11.8	15.9
10	9.6	7.5	8.5	10.4	
15	7.9	8.4	9.2		
20	8.0	8.6	8.9		
30	8.4	8.0			
40	8.3	10.8			
50	10.8				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.7	1.7	1.8	1.7	2.1
5	1.7	1.7	1.7	1.8	2.2
10	1.8	1.7	1.6	1.8	
15	1.7	1.7	1.7		
20	1.7	1.7	1.8		
30	1.8	1.7			
40	1.8	2.1			
50	2.3				

Table 27B

DeGray
6/18/71

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	1.9	2.1	2.0	1.9	2.2
5	1.9	2.0	1.9	2.0	2.1
10	2.0	1.8	2.0	1.9	
15	1.8	1.7	2.0		
20	2.0	1.9	1.8		
30	1.9	1.7			
40	1.9	1.9			
50	1.8				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.3	1.3	1.1	1.0
5	1.5	1.4	1.3	1.2	1.0
10	1.5	1.4	1.0	1.0	
15	1.5	1.4	1.2		
20	1.5	1.4	1.4		
30	1.5	1.6			
40	1.5	1.6			
50	1.7				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.08	0.07	0.15	0.07	0.08
5	0.12	0.09	0.11	0.09	0.13
10	0.11	0.09	0.09	0.23	
15	0.09	0.11	0.14		
20	0.12	0.10	0.19		
30	0.07	0.11			
40	0.09	0.28			
50	0.21				

Table 27C

DeGray
6/18/71

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	2.1	1.9	1.9	2.2	1.8
5	2.1	1.8	2.0	2.0	1.9
10	1.8	1.5	1.9	2.0	
15	1.7	1.8	1.9		
20	1.7	1.7	2.3		
30	2.0	1.7			
40	1.9	1.9			
50	2.0				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.09	0.08	0.08	0.08	0.10
5	0.07	0.06	0.06	0.06	0.06
10	0.06	0.05	0.06	0.05	
15	0.06	0.06	0.05		
20	0.05	0.06	0.10		
30	0.09	0.06			
40	0.07	0.07			
50	0.09				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	4.0	4.6	5.8	5.5	6.4
5	3.8	4.1	5.1	5.9	8.0
10	5.1	5.0	5.2	8.5	
15	5.3	5.0	7.2		
20	4.9	5.5	5.8		
30	4.5	5.2			
40	5.0	8.7			
50	9.8				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	5	22	0	13	8
5	6	13	10	18	0
10	9	2	13	8	
15	2	18	6		
20	2	9	2		
30	21	25			
40	10	23			
50	11				

Table 27D

DeGray
6/18/71

Iron, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.019	0.013	0.012	0.025	0.019
5	0.043	0.015	0.008	0.047	2.60
10	0.183	0.026	0.850	4.80	
15	0.164	0.109	2.20		
20	0.107	0.144	2.70		
30	0.160	1.00			
40	0.220	9.60			
50	8.80				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.018	0.016	0.012	0.011	0.037
5	0.020	0.017	0.011	0.034	0.028
10	0.015	0.019	0.012	0.020	
15	0.029	0.020	0.011		
20	0.024	0.036	0.010		
30	0.037	0.128			
40	0.038	0.016			
50	0.084				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.003	0.001	0.004	0.012
5	0.006	0.002	0.007	0.200	2.87
10	0.009	0.004	0.792	1.86	
15	0.004	0.031	1.08		
20	0.008	0.700	1.27		
30	0.004	1.29			
40	0.027	4.41			
50	5.219				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.022	0.024	0.026	0.020	0.016
5	0.020	0.022	0.031	0.045	0.033
10	0.026	0.028	0.006	0.009	
15	0.034	0.059	0.006		
20	0.068	0.020	0.006		
30	0.180	0.017			
40	0.312	0.021			
50	0.038				

Table 27E

DeGray
6/18/71

Copper, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.014	0.004	0.002	0.010	0.007
5	0.018	0.005	0.006	0.010	0.012
10	0.022	0.003	0.008	0.026	
15	0.019	0.019	0.007		
20	0.013	0.011	0.011		
30	0.016	0.000			
40	0.013	0.003			
50	0.004				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.017	0.015	0.014	0.016	0.016
5	0.020	0.012	0.014	0.017	0.012
10	0.021	0.015	0.019	0.020	
15	0.014	0.011	0.019		
20	0.014	0.013	0.013		
30	0.016	0.011			
40	0.015	0.019			
50	0.013				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.006	0.008	0.013	0.041	0.021
5	0.006	0.006	0.009	0.006	0.011
10	0.004	0.007	0.003	0.014	
15	0.010	0.007	0.021		
20	0.007	0.008	0.008		
30	0.007	0.008			
40	0.009	0.000			
50	0.009				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.011	0.008	0.012	0.005	0.008
5	0.010	0.006	0.004	0.003	0.016
10	0.011	0.007	0.006	0.008	
15	0.005	0.007	0.004		
20	0.004	0.008	0.006		
30	0.011	0.008			
40	0.013	0.000			
50	0.002				

Table 27F

DeGray
6/18/71

Cobalt, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.001			
50	0.001				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.000			
50	0.000				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.001	0.001	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.004		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.006	0.002	0.000	0.000	0.000
5	0.006	0.001	0.001	0.000	0.000
10	0.002	0.000	0.000	0.001	
15	0.004	0.000	0.000		
20	0.003	0.000	0.000		
30	0.006	0.000			
40	0.002	0.001			
50	0.004				

Table 27G

DeGray
6/18/71

Zinc, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.025	0.002	0.000	0.002	0.003
5	0.004	0.000	0.003	0.009	0.000
10	0.021	0.000	0.000	0.000	
15	0.002	0.001	0.000		
20	0.001	0.000	0.000		
30	0.004	0.000			
40	0.000	0.000			
50					

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.062	0.012	0.004	0.004	0.006
5	0.008	0.008	0.002	0.002	0.003
10	0.008	0.016	0.004	0.004	
15	0.006	0.006	0.007		
20	0.011	0.004	0.002		
30	0.008	0.001			
40	0.005	0.004			
50	0.013				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.001	0.001	0.002
5	0.000	0.000	0.002	0.000	0.002
10	0.001	0.000	0.000	0.003	
15	0.002	0.000	0.001		
20	0.001	0.000	0.001		
30	0.000	0.000			
40	0.000	0.004			
50	0.008				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.001	0.001	0.001	0.001
5	0.001	0.001	0.001	0.001	0.001
10	0.001	0.003	0.001	0.001	
15	0.001	0.001	0.001		
20	0.001	0.001	0.000		
30	0.001	0.001			
40	0.001	0.001			
50	0.001				

Table 27H

DeGray
6/18/71

Silver, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.004	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.006	0.000	0.001	0.001	0.002
5	0.011	0.001	0.001	0.001	0.002
10	0.010	0.000	0.001	0.001	
15	0.025	0.004	0.000		
20	0.001	0.001	0.000		
30	0.001	0.001			
40	0.001	0.000			
50	0.001				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 28A

DeGray
6/29/71

pH

Depth (m)	1	7	10	12	13
0	7.0	7.0	7.1	7.1	7.1
5	7.1	7.1	6.9	6.8	6.8
10	6.6	6.7	6.7	6.9	
15	6.6	6.5	6.7		
20	6.5	6.6	6.7		
30	6.5	6.7			
40	6.4	6.7			
50	6.7				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	31	31	35	38	50
5	32	32	32	40	49
10	28	30	31	40	
15	30	29	35		
20	29	32	33		
30	29	38			
40	31	40			
50	50				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	8.4	9.4	9.9	12.6	16.4
5	8.6	9.2	10.5	13.4	17.8
10	8.3	9.0	9.0	11.8	
15	8.4	8.6	10.4		
20	10.0	9.2	10.2		
30	9.0	11.0			
40	9.8	12.0			
50	11.4				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.7	1.7	1.8	1.9	2.1
5	1.8	1.7	1.8	2.0	2.2
10	1.7	1.6	1.6	1.9	
15	1.8	1.7	1.7		
20	1.8	1.8	1.8		
30	2.0	2.0			
40	1.9	2.3			
50	2.6				

Table 28B

DeGray
6/29/71

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.2	2.3	2.3	2.3	2.3
5	2.2	2.2	2.3	2.2	2.2
10	2.2	2.2	2.3	2.3	
15	2.1	2.1	2.2		
20	2.1	2.1	2.1		
30	2.1	2.1			
40	2.1	2.2			
50	2.1				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.4	1.5	1.4	1.2	1.0
5	1.6	1.5	1.3	1.2	
10	1.6	1.5	1.2	1.2	
15	1.6	1.5	1.4		
20	1.6	1.6	1.5		
30	1.5	1.6			
40	1.6	1.8			
50	2.0				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.06	0.08	0.07	0.07	0.03
5	0.06	0.07	0.09	0.07	0.08
10	0.06	0.08	0.10	0.38	
15	0.09	0.08	0.20		
20	0.08	0.10	0.24		
30	0.08	0.19			
40	0.19	0.64			
50	0.26				

Table 28C

DeGray
6/29/71

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	1.9	1.9	1.9	1.7	1.9
5	1.8	2.0	1.8	1.8	1.8
10	1.7	1.7	1.7	1.8	
15	1.8	1.7	1.8		
20	1.6	1.8	1.6		
30	1.9	1.8			
40	1.7	1.6			
50					

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.08	0.09	0.09	0.09	0.13
5	0.13	0.12	0.06	0.07	0.09
10	0.06	0.06	0.05	0.12	
15	0.07	0.07	0.05		
20	0.10	0.06	0.06		
30	0.06	0.05			
40	0.05	0.05			
50	0.07				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	4.2	4.2	4.7	4.7	4.4
5	5.4	2.0	2.6	4.5	6.8
10	5.5	3.4	7.5	7.4	
15	5.5	5.3	7.1		
20	5.0	6.7	6.4		
30	2.0	8.3			
40	5.5	10.3			
50	8.8				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	29	24	9	26	12
5	16	21	26	33	18
10	18	13	25	17	
15	21	9	20		
20	17	21	18		
30	25	29			
40	12	26			
50	19				

Table 28D

DeGray
6/29/71

Iron, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.048	0.013	0.011	0.005	0.013
5	0.019	0.023	0.027	0.023	0.089
10	0.062	0.021	1.10	5.20	
15	0.096	0.075	2.20		
20	0.114	0.325	2.83		
30	0.166	3.45			
40	0.204	11.7			
50	9.45				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.033	0.018	0.021	0.009	0.030
5	0.015	0.010	0.018	0.009	0.074
10	0.021	0.023	0.018	0.010	
15	0.036	0.020	0.016		
20	0.026	0.074	0.016		
30	0.031	0.013			
40	0.048	0.020			
50	0.043				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.009	0.000	0.000	0.000	0.002
5	0.004	0.000	0.009	0.008	0.350
10	0.003	0.005	1.05	2.20	
15	0.016	0.085	1.30		
20	0.005	0.975	1.45		
30	0.003	2.50			
40	0.021	4.60			
50	5.65				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.011	0.020	0.010	0.017	0.002
5	0.012	0.015	0.034	0.078	0.350
10	0.035	0.044	0.000	0.009	
15	0.045	0.058	0.000		
20	0.057	0.016	0.005		
30	0.150	0.015			
40	0.250	0.016			
50	0.027				

Table 28E

DeGray
6/29/71

Copper, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.009	0.006	0.004	0.000	0.008
5	0.007	0.006	0.005	0.003	0.020
10	0.010	0.004	0.004	0.011	
15	0.016	0.017	0.005		
20	0.015	0.014	0.013		
30	0.012	0.008			
40	0.012	0.013			
50	0.025				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.017	0.010	0.011	0.013	0.013
5	0.015	0.013	0.015	0.012	0.014
10	0.014	0.014	0.016	0.017	
15	0.022	0.015	0.015		
20	0.016	0.017	0.013		
30	0.019	0.014			
40	0.017	0.008			
50	0.017	0.013			

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.007	0.001	0.002	0.000	0.011
5	0.005	0.004	0.005	0.000	0.006
10	0.008	0.006	0.002	0.001	
15	0.012	0.004	0.000		
20	0.008	0.011	0.002		
30	0.010	0.007			
40	0.007	0.010			
50	0.012				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.014	0.000	0.000	0.008	0.002
5	0.021	0.001	0.006	0.000	0.000
10	0.013	0.006	0.004	0.006	
15	0.056	0.014	0.000		
20	0.004	0.004	0.004		
30	0.008	0.007			
40	0.014	0.004			
50	0.010				

Table 28F

DeGray
6/29/71

Cobalt, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.002	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000	0.005			
50	0.000				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.001	0.001	0.000	0.000
5	0.002	0.003	0.000	0.000	0.000
10	0.000	0.003	0.000	0.000	
15	0.004	0.001	0.000		
20	0.001	0.001	0.000		
30	0.003	0.000			
40	0.002	0.000			
50	0.002				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.003	0.005	0.005	0.007
5	0.003	0.002	0.008	0.005	0.011
10	0.004	0.005	0.008	0.007	
15	0.002	0.005	0.005		
20	0.008	0.008	0.010		
30	0.005	0.008			
40	0.002	0.008			
50	0.006				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000		0.000
5	0.000	0.000	0.000		0.000
10	0.000	0.000	0.000		
15	0.002	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.001	0.000			
50	0.000				

Table 28G

DeGray
6/29/71

Zinc, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.004
10	0.000	0.000	0.000	0.013	
15	0.006	0.000	0.000		
20	0.000	0.003	0.008		
30	0.008	0.012			
40	0.017	0.022			
50	0.039				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.032	0.000	0.001	0.002	0.000
5	0.012	0.000	0.008	0.004	0.001
10	0.011	0.004	0.012	0.007	
15	0.038	0.010	0.000		
20	0.008	0.005	0.000		
30	0.018	0.004			
40	0.031	0.013			
50	0.009				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.001
10	0.000	0.002	0.000	0.001	
15	0.001	0.002	0.001		
20	0.000	0.002	0.002		
30	0.000	0.004			
40	0.000	0.007			
50	0.007				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.000	0.000	0.000	0.000
5	0.001	0.000	0.000	0.000	0.000
10	0.003	0.002	0.000	0.000	
15	0.010	0.002	0.000		
20	0.000	0.001	0.000		
30	0.000	0.001			
40	0.001	0.000			
50	0.000				

Table 28H

DeGray
6/29/71

Silver, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.001	0.002	0.002	0.001
5	0.002	0.001	0.001	0.001	0.001
10	0.001	0.002	0.002	0.000	
15	0.001	0.009	0.002		
20	0.001	0.002	0.002		
30	0.003	0.002			
40	0.016	0.002			
50	0.162				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.074	0.017	0.016	0.002	0.001
5	0.053	0.001	0.031	0.001	0.001
10	0.001	0.001	0.018	0.000	
15	0.044	0.019	0.021		
20	0.001	0.024	0.000		
30	0.042	0.020			
40	0.035	0.003			
50	0.023				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 29A

DeGray
7/27/71

pH

Depth (m)	1	7	10	12	13
0	7.1	7.3	7.3	7.1	7.3
5	7.0	7.4	7.4	6.9	6.9
10	6.6	6.7	6.7	6.6	
15	6.6	6.7	6.7	6.6	
20	6.5	6.7	6.5		
30	6.5	6.7			
40	6.4	6.7			
50	6.8				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	33	33	38	43	54
5	32	34	35	47	39
10	31	34	41	50	
15	33	32	45		
20	33	40	45		
30	34	42			
40	34	46			
50	59				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	7.6	7.8	8.4	10.9	16.0
5	7.6	7.6	8.3	11.4	10.4
10	7.5	7.4	8.1	9.7	
15	7.4	7.6	8.3		
20	7.5	7.9	8.4		
30	7.5				
40	7.6				
50	9.5				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.6	1.7	1.8	1.8
5	1.4	1.4	1.5	1.7	1.5
10	1.5	1.5	1.4	1.6	
15	1.6	1.3	1.7		
20	1.5	1.5	1.5		
30	1.7	1.6			
40	1.6	1.8			
50	2.1				

Table 29B

DeGray
7/27/71

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.1	2.1	2.1	2.1	2.0
5	2.1	2.1	2.1	3.1	1.9
10	2.0	2.0	2.2	2.2	
15	1.9	2.0	2.1		
20	2.0	2.1	2.0		
30	1.9	2.0			
40	1.9	2.0			
50	2.0				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.4	1.3	1.2	1.0
5	1.3	1.4	1.3	1.3	1.4
10	1.4	1.3	1.1	1.2	
15	1.4	1.3	1.4		
20	1.5	1.5	1.4		
30	1.5	1.6			
40	1.6	1.6			
50	1.8				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.11	0.09	0.10	0.10	0.11
5	0.10	0.09	0.10	0.10	0.11
10	0.11	0.13	0.13	0.56	
15	0.11	0.12	0.37		
20	0.11	0.16	0.41		
30	0.12	0.35			
40	0.11	0.33			
50	0.41				

Table 29C

DeGray
7/27/71

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	2.3	2.1	2.2	2.3	2.2
5	2.1	2.2	2.1	2.3	1.9
10	1.9	1.9	1.8	2.2	
15	1.6	1.7	1.7		
20	2.0	2.0	2.1		
30	2.1	1.8			
40	1.8	1.7			
50	1.8				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.07	0.07	0.07	0.07	0.10
5	0.06	0.07	0.07	0.06	0.09
10	0 06	0.05	0.06	0.05	
15	0.12	0.07	0.05		
20	0.08	0.05	0.04		
30	0.05	0.04			
40	0.05	0.05			
50	0.06				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	2.0	6.0	4.4	7.2	7.1
5	3.0	2.8	5.1	5.2	7.5
10	2.0	5.9	5.8	9.7	
15	2.1	6.5	7.1		
20	5.4	7.3	8.1		
30	6.4	8.3			
40	3.5	7.8			
50	11.0				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	7	2	10	0	0
5	1	10	0	2	0
10	0	0	0	0	
15	4	0	14		
20	3	0	3		
30	4	10			
40	8	10			
50	8				

Table 28D

DeGray
7/27/71

Iron, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.044	0.026	0.024	0.018	0.012
5	0.012	0.008	0.008	0.046	0.024
10	0.054	0.054	1.20	7.80	
15	0.104	0.094	3.55		
20	0.172	1.60	3.80		
30	0.188	3.90			
40	0.222	4.70			
50	12.0				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.013	0.002	0.012	0.014	0.019
5	0.010	0.003	0.008	0.024	0.054
10	0.013	0.017	0.006	0.049	
15	0.016	0.021	0.006		
20	0.028	0.001	0.005		
30	0.023	0.004			
40	0.045	0.012			
50	0.026				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.037	0.020	0.015	0.003	0.020
5	0.002	0.004	0.013	0.022	0.003
10	0.003	0.184	1.69	2.33	
15	0.003	0.550	1.57		
20	0.005	1.39	1.52		
30	0.007	2.06			
40	0.548	2.26			
50	5.99				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.019	0.007	0.028	0.053	0.044
5	0.013	0.009	0.030	0.072	0.070
10	0.051	0.025	0.003	2.099	
15	0.051	0.007	0.003		
20	0.064	0.001	0.004		
30	0.107	0.006			
40	0.104	0.011			
50	0.016				

Table 29E

DeGray
7/27/71

Copper, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.012	0.012	0.009	0.016	0.017
5	0.015	0.014	0.011	0.020	0.012
10	0.012	0.019	0.010	0.017	
15	0.017	0.020	0.011		
20	0.014	0.012	0.010		
30	0.019	0.010			
40	0.020	0.016			
50	0.002				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.010	0.015	0.009	0.016	0.017
5	0.010	0.016	0.011	0.020	0.012
10	0.013	0.015	0.010	0.017	
15	0.012	0.014	0.011		
20	0.015	0.015	0.010		
30	0.012	0.015			
40	0.019	0.017			
50	0.009				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.013	0.006	0.011	0.012	0.013
5	0.005	0.003	0.007	0.006	0.008
10	0.008	0.010	0.005	0.000	
15	0.004	0.014	0.000		
20	0.009	0.000	0.000		
30	0.009	0.000			
40	0.009	0.000			
50	0.000				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.009	0.003	0.005	0.012
5	0.004	0.020	0.006	0.010	0.007
10	0.000	0.007	0.059	0.011	
15	0.007	0.001	0.005		
20	0.009	0.003	0.005		
30	0.008	0.007			
40	0.007	0.008			
50	0.008				

Table 29F

DeGray
7/27/71

Cobalt, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.004	0.002	0.003	0.003
5	0.005	0.004	0.003	0.003	0.003
10	0.002	0.003	0.005	0.004	
15	0.003	0.005	0.005		
20	0.003	0.003	0.003		
30	0.004	0.003			
40	0.003	0.004			
50	0.004				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.001	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.002	0.000			
40	0.003	0.000			
50	0.001				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.006	0.000	0.000
5	0.005	0.000	0.000	0.001	0.001
10	0.001	0.002	0.002	0.004	
15	0.003	0.004	0.000		
20	0.005	0.001	0.000		
30	0.002	0.001			
40	0.001	0.000			
50	0.004				

Table 29G

DeGray
7/27/71

Zinc, filtered (ppm)

DEPTH (M)	1	7	10	12	13
0	0.017	0.005	0.001	0.007	0.008
5	0.006	0.003	0.000	0.003	0.005
10	0.010	0.000	0.000	0.000	
15	0.003	0.000	0.000		
20	0.006	0.004	0.000		
30	0.006	0.000			
40	0.007	0.000			
50	0.000				

Zinc, particulate (ppm)

DEPTH (M)	1	7	10	12	13
0	0.000	0.008	0.000	0.039	0.005
5	0.003	0.010	0.000	0.000	0.000
10	0.007	0.000	0.002	0.002	
15	0.005	0.000	0.002		
20	0.017	0.001	0.000		
30	0.007	0.009			
40	0.009				
50	0.004				

Cadmium, filtered (ppm)

DEPTH (M)	1	7	10	12	13
0	0.001	0.001	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.001	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.001				

Cadmium, particulate (ppm)

DEPTH (M)	1	7	10	12	13
0	0.003	0.001	0.001	0.001	0.001
5	0.002	0.001	0.001	0.001	0.001
10	0.001	0.001	0.001	0.000	
15	0.001	0.000	0.000		
20	0.002	0.000	0.000		
30	0.002	0.000			
40	0.001	0.001			
50	0.001				

Table 29H

DeGray
7/27/71
Silver, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.001	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.003	0.000		
20	0.002	0.000	0.000		
30	0.000	0.009			
40	0.000	0.000			
50	0.000				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 30A

DeGray
7/8/71

pH

Depth (m)	1	7	10	12	13
0	7.1	7.1	7.3	7.3	7.4
5	7.1	7.3	7.0	7.1	6.9
10	6.7	6.7	6.7	6.9	
15	6.7	6.7	6.7		
20	6.7	6.7	6.7		
30	6.7	6.7			
40	6.3	6.7			
50	6.8				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	30	33	34	38	46
5	31	31	36	50	58
10	31	32	33	47	
15	30	33	38		
20	32	35	42		
30	31	41			
40	33	51			
50	57				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	8.2	8.3	8.8	11.3	14.2
5	8.2	8.3	10.1	15.2	17.9
10	8.2	8.2	8.9	10.9	
15	8.1	8.5	9.0		
20	8.2	8.6	9.2		
30	8.3	9.5			
40	8.5	10.2			
50	10.6				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.7	1.9	2.0	2.1	2.2
5	1.8	1.9	2.0	2.5	2.5
10	2.0	1.8	1.8	2.0	
15	2.0	1.8	1.8		
20	1.9	1.9	1.9		
30	1.9	2.1			
40	2.1	2.4			
50	2.5				

Table 30B

DeGray
7/8/71
Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.3	2.2	2.2	2.2	2.2
5	2.2	2.3	2.4	2.2	2.3
10	2.1	2.2	2.3	2.3	
15	2.2	2.2	2.2		
20	2.1	2.1	2.4		
30	2.2	2.1			
40	2.2	2.2			
50	2.1				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.4	1.5	1.4	1.2	1.2
5	1.3	1.4	1.4	1.2	1.0
10	1.4	1.4	1.1	1.1	
15	1.5	1.4	1.2		
20	1.5	1.4	1.5		
30	1.5	1.6			
40	1.6	1.8			
50	1.8				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.10	0.11	0.05	0.10	0.11
5	0.10	0.09	0.10	0.08	0.11
10	0.11	0.11	0.13	0.35	
15	0.11	0.11	0.20		
20	0.09	0.09	0.25		
30	0.10	0.22			
40	0.11	0.31			
50	0.15				

Table 30C

DeGray
7/8/71

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	2.4	2.2	2.2	2.1	2.1
5	2.0	2.0	2.2	1.9	1.9
10	1.9	2.2	2.0	2.0	
15	1.9	2.0	1.9		
20	1.9	1.9	2.0		
30	1.9	2.0			
40	1.9	1.9			
50	1.9				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.09	0.10	0.10	0.13	0.11
5	0.10	0.10	0.11	0.09	0.12
10	0.09	0.06	0.06	0.05	
15	0.07	0.06	0.06		
20	0.07	0.06	0.06		
30	0.08	0.06			
40	0.06	0.08			
50	0.11				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	6.8	4.9	7.1	5.2	6.1
5	8.0	5.7	4.0	5.1	4.3
10	5.3	6.5	5.7	10.0	
15	6.4	8.1	9.0		
20	5.9	4.8	6.0		
30	7.4	8.5			
40	6.6	4.8			
50	8.1				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	4	8	7	6	7
5	4	6	6	4	4
10	5	3	6	8	
15	3	6	4		
20	4	4	2		
30	6	4			
40	7	8			
50	10				

Table 30D

DeGray
7/8/71

Iron, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.030	0.034	0.027	0.029	0.028
5	0.026	0.012	0.023	0.028	0.750
10	0.118	0.061	1.25	6.10	
15	0.144	0.124	3.00		
20	0.132	0.850	3.25		
30	0.176	3.90			
40	0.180	8.80			
50	11.000				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.014	0.006	0.018	0.011	0.018
5	0.012	0.002	0.024	0.024	0.096
10	0.023	0.024	0.030	0.036	
15	0.017	0.039	0.002		
20	0.020	0.035	0.005		
30	0.033	0.019			
40	0.036	0.025			
50	0.020				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.024	0.001	0.008	0.007	0.000
5	0.013	0.000	0.004	0.006	1.24
10	0.011	0.020	1.14	2.25	
15	0.000	0.225	1.22		
20	0.008	1.09	1.47		
30	0.003	2.02			
40	0.006	3.82			
50	5.70				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.001	0.002	0.014	0.046
5	0.002	0.004	0.010	0.087	0.048
10	0.042	0.061	0.000	0.007	
15	0.036	0.054	0.000		
20	0.052	0.003	0.000		
30	0.148	0.001			
40	0.316	0.002			
50	0.005				

Table 30E

DeGray
7/8/71

Copper, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.008	0.014	0.009	0.006	0.007
5	0.010	0.006	0.008	0.016	0.016
10	0.009	0.012	0.007	0.012	
15	0.008	0.012	0.008		
20	0.007	0.005	0.012		
30	0.011	0.006			
40	0.009	0.011			
50	0.009				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.015	0.012	0.008	0.010	0.013
5	0.014	0.010	0.007	0.011	0.011
10	0.016	0.009	0.012	0.013	
15	0.010	0.010	0.009		
20	0.018	0.010	0.017		
30	0.015	0.011			
40	0.014	0.007			
50	0.012				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.015	0.009	0.005	0.004	0.006
5	0.015	0.006	0.004	0.014	0.001
10	0.015	0.019	0.000	0.000	
15	0.006	0.014	0.000		
20	0.009	0.006	0.000		
30	0.007	0.000			
40	0.009	0.000			
50	0.000				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.007	0.000	0.003	0.003	0.003
5	0.010	0.000	0.000	0.004	0.000
10	0.008	0.000	0.000	0.000	
15	0.004	0.005	0.000		
20	0.012	0.004	0.004		
30	0.008	0.002			
40	0.008	0.002			
50	0.000				

Table 30F

DeGray
7/8/71

Cobalt, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.000	0.002	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.002	0.003	0.003	
15	0.003	0.001	0.003		
20	0.003	0.000	0.005		
30	0.000	0.003			
40	0.000	0.007			
50	0.010				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.001	0.000	0.000	0.000
5	0.001	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.001	0.000			
50	0.001				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.001	0.000	0.000	0.000
10	0.001	0.000	0.000	0.007	
15	0.000	0.000	0.000		
20	0.000	0.000	0.001		
30	0.000	0.000			
40	0.000	0.001			
50	0.001				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000			
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Table 30G

DeGray
7/8/71

Zinc, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.039	0.011	0.004	0.002	0.000
5	0.010	0.002	0.001	0.003	0.000
10	0.016	0.007	0.000	0.000	
15	0.011	0.009	0.000		
20	0.024	0.000	0.000		
30	0.023	0.000			
40	0.021	0.000			
50	0.023				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.016	0.002	0.003	0.001	0.003
5	0.003	0.003	0.000	0.005	0.003
10	0.006	0.002	0.001	0.003	
15	0.020	0.003	0.000		
20	0.010	0.002	0.007		
30	0.012	0.002			
40	0.014	0.000			
50	0.017				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.001	0.000	0.001	0.002	
15	0.000	0.000	0.000		
20	0.001	0.000	0.000		
30	0.000	0.002			
40	0.001	0.003			
50	0.012				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.002	0.002	0.001	0.004
5	0.001	0.002	0.001	0.001	0.000
10	0.001	0.002	0.002	0.001	
15	0.001	0.000	0.001		
20	0.001	0.001	0.000		
30	0.000	0.000			
40	0.002	0.001			
50	0.002				

Table 30H

DeGray
7/8/71

Silver, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.001	0.000	0.000	0.002
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.001	0.000	0.000	
15	0.004	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.002	0.000	0.000
5	0.000	0.000	0.000	0.001	0.000
10	0.000	0.000	0.001	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.001		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 31A

DeGray
8/5/71

pH

Depth (m)	1	7	10	12	13
0	7.0	7.1	7.1	7.1	7.3
5	7.1	7.1	7.0	6.7	6.9
10	6.7	6.7	6.7	6.7	
15	6.7	6.5	6.7		
20	6.7	6.7	6.7		
30	6.4	6.7			
40	6.5	6.5			
50	6.9				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	33	34	36	42	43
5	33	33	34	36	32
10	33	33	40	50	
15	33	33	41		
20	32	32	48		
30	34	39			
40	35	57			
50	57				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	9.0	8.6	9.2	11.0	11.4
5	8.6	8.6	9.3	9.6	8.7
10	8.2	8.5	9.3	10.8	
15	8.2	8.9	9.1		
20	7.6	8.9			
30	8.7	9.5			
40	8.4	10.7			
50	10.8				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.8	1.8	1.8	1.9	1.9
5	1.8	1.7	1.9	1.7	1.4
10	1.8	1.7	1.7	2.0	
15	1.8	1.7	1.8		
20	1.8	1.7	2.0		
30	1.9	2.0			
40	2.0	2.6			
50	2.7				

Table 31B

DeGray
8/5/71

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	1.7	1.7	1.7	1.7	1.7
5	1.9	1.7	1.8	1.9	1.6
10	1.6	1.8	1.9	2.0	
15	1.6	1.6	1.8		
20	1.6	1.7	1.9		
30	1.5	1.6			
40	1.6	1.7			
50	1.6				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.4	1.4	1.3	1.3	1.4
5	1.5	1.4	1.3	1.3	1.3
10	1.6	1.5	1.2	1.4	
15	1.6	1.5	1.5		
20	1.6	1.5	1.6		
30	1.6	1.7			
40	1.7	1.8			
50	1.8				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.04	0.06	0.05	0.06	0.09
5	0.02	0.02	0.16	0.08	0.20
10	0.18	0.06	0.09	0.21	
15	0.15	0.05	0.22		
20	0.05	0.04	0.29		
30	0.06	0.21			
40	0.06	0.46			
50	0.25				

Table 31C

DeGray
8/5/71

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	1.8	1.8	2.4	1.8	2.4
5	2.1	1.9	2.3	1.9	1.6
10	1.7	1.5	2.2	2.3	
15	1.7	1.9	2.1		
20	1.8	1.7	2.0		
30	1.7	1.9			
40	2.0	2.1			
50	1.9				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.09	0.08	0.07	0.08	0.07
5	0.10	0.09	0.08	0.08	0.06
10	0.06	0.05	0.04	0.05	
15	0.08	0.05	0.06		
20	0.05	0.06	0.04		
30	0.07	0.08			
40	0.11	0.06			
50	0.06				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	7.2	8.5	6.9	8.1	7.4
5	6.6	5.0	7.6	8.7	7.1
10	7.4	6.6	9.3	11.1	
15	8.1	7.7	9.5		
20	8.4	7.8	10.4		
30	8.0	9.5			
40	7.6	13.0			
50	13.5				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	7	11	10	9	7
5	6	11	11	7	9
10	4	9	15	10	
15	6	12	9		
20	3	8	16		
30	7	6			
40	6	6			
50	16				

Table 31D

DeGray
8/5/71

Iron, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.020	0.022	0.025	0.023	0.032
5	0.015	0.021	0.020	0.034	0.033
10	0.045	0.049	1.70	7.60	
15	0.058	0.258	2.65		
20	0.074	0.114	3.25		
30	0.074	3.60			
40	0.158	12.05			
50	15.0				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.010	0.000	0.001	0.052	0.038
5	0.010	0.000	0.000	0.014	0.292
10	0.013	0.017	0.001	0.083	
15	0.016	0.004	0.001		
20	0.024	0.026	0.000		
30	0.043	0.001			
40	0.030	0.007			
50	0.128				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.013	0.011	0.017	0.006	0.003
5	0.013	0.012	0.005	0.006	0.004
10	0.015	0.198	1.600	1.778	
15	0.004	0.466	0.873		
20	0.006	0.499	1.273		
30	0.006	1.864			
40	0.508	4.642			
50	6.015				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.006	0.010	0.016	0.057	0.032
5	0.006	0.008	0.042	0.022	0.026
10	0.036	0.003	0.004	1.778	
15	0.048	0.001	0.002		
20	0.063	0.002	0.002		
30	0.087	0.004			
40	0.054	0.008			
50	0.032				

Table 31E

DeGray
8/5/71

Copper, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.009	0.007	0.014	0.010	0.005
5	0.010	0.011	0.009	0.002	0.008
10	0.010	0.017	0.012	0.012	
15	0.009	0.014	0.009		
20	0.007	0.007	0.012		
30	0.003	0.012			
40	0.024	0.005			
50	0.005				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.021	0.019	0.018	0.017	0.007
5	0.019	0.005	0.015	0.018	0.016
10	0.017	0.016	0.018	0.018	
15	0.018	0.020	0.020		
20	0.018	0.018	0.016		
30	0.018	0.020			
40	0.024	0.018			
50	0.024				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.006	0.017	0.002	0.010	0.001
5	0.000	0.010	0.007	0.011	0.011
10	0.000	0.010	0.000	0.000	
15	0.009	0.005	0.000		
20	0.008	0.005	0.000		
30	0.011	0.000			
40	0.006	0.000			
50	0.000				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.010	0.000	0.004	0.008	0.012
5	0.008	0.009	0.004	0.005	0.006
10	0.011	0.010	0.005	0.009	
15	0.001	0.000	0.008		
20	0.002	0.002	0.003		
30	0.002	0.002			
40	0.003	0.005			
50	0.012				

Table 31F

DeGray
8/5/71

Cobalt, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.000	0.002	0.000	0.002
5	0.000	0.000	0.001	0.002	0.000
10	0.001	0.001	0.005	0.002	
15	0.000	0.002	0.007		
20	0.000	0.002	0.005		
30	0.000	0.005			
40	0.000	0.007			
50	0.000	0.004			

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.005	0.004	0.002	0.003	0.004
5	0.003	0.005	0.003	0.005	0.005
10	0.003	0.006	0.006	0.004	
15	0.005	0.002	0.003		
20	0.003	0.005	0.002		
30	0.005	0.007			
40	0.002	0.004			
50	0.007				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.000	0.002	0.000	0.000
5	0.005	0.002	0.002	0.001	0.000
10	0.000	0.001	0.003	0.002	
15	0.002	0.000	0.005		
20	0.002	0.002	0.005		
30	0.000	0.004			
40	0.002	0.001			
50	0.007				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.005	0.000	0.000	0.000	0.000
5	0.001	0.000	0.000	0.000	0.001
10	0.001	0.001	0.000	0.000	
15	0.001	0.000	0.004		
20	0.000	0.003	0.002		
30	0.000	0.000			
40	0.000	0.000			
50	0.004				

Table 31G

DeGray
8/5/71

Zinc, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.014	0.004	0.005	0.000	0.004
5	0.000	0.017	0.005	0.000	0.000
10	0.000	0.014	0.008	0.000	
15	0.025	0.008	0.000		
20	0.003	0.000	0.000		
30	0.001	0.000			
40	0.001	0.000			
50	0.000				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.014	0.001	0.003	0.005	0.011
5	0.014	0.004	0.003	0.003	0.005
10	0.006	0.007	0.004	0.003	
15	0.009	0.000	0.004		
20	0.004	0.003	0.000		
30	0.004	0.002			
40	0.008				
50	0.018				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.001		
30	0.000	0.000			
40	0.000	0.000			
50	0.001				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.001	0.001	0.001	0.002
5	0.002	0.001	0.001	0.001	0.002
10	0.001	0.002	0.000	0.001	
15	0.001	0.002	0.002		
20	0.001	0.001	0.001		
30	0.001	0.002			
40	0.001	0.001			
50	0.001				

Table 31H

DeGray
8/5/71

Silver, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.011	0.000
5	0.003	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.001	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.001	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000			
30	0.000	0.000			
40	0.001	0.000			
50	0.000				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 32A

DeGray
8/23/71

pH

Depth (m)	1	7	10	12	13
0	7.1	7.1	7.3	7.3	7.1
5	6.9	7.1	6.8	6.7	6.7
10	6.7	6.7	6.5	6.9	
15	6.7	6.7	6.7		
20	6.7	6.7	6.7		
30	6.5	6.7			
40	6.5	6.7			
50	6.9				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	33	34	36	39	43
5	34	32	35	41	45
10	37	33	43	47	
15	32	34	40		
20	33	40	42		
30	30	37			
40	37	50			
50	64				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	8.5	8.5	9.6	8.7	12.7
5	8.5	8.5	9.7	11.2	14.5
10	8.5	8.7	10.2	11.4	
15	8.2	8.7	9.7		
20	7.8	8.8	9.0		
30	8.6	9.4			
40	8.7	10.2			
50	11.7				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.7	1.7	1.8	1.8	1.9
5	1.7	1.6	1.7	1.8	1.9
10	1.8	1.6	1.7	2.2	
15	1.8	1.7	1.8		
20	1.8	1.8	1.9		
30	1.9	1.9			
40	1.9	3.6			
50	5.9				

Table 32B

DeGray
8/23/71

Sodium (ppm)

Depth (m)	1	7	10	12	13
0	2.2	2.2	2.2	2.2	2.4
5	2.2	2.4	2.3	2.2	2.5
10	2.1	2.2	2.8	2.3	
15	2.1	2.1	2.3		
20	2.1	2.1	2.2		
30	2.1	2.1			
40	2.1	2.1			
50	2.1				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.4	1.4	1.4	1.3	1.0
5	1.4	1.3	1.4	1.2	0.9
10	1.5	1.3	1.2	1.2	
15	1.5	1.3	1.4		
20	1.5	1.4	1.5		
30	1.5	1.5			
40	1.5	1.8			
50	1.8				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	0.1	0.2	0.2	0.0	0.0
5	0.2	0.1	0.1	0.0	0.0
10	0.2	0.0	0.0	0.0	
15	0.6	0.0	0.0		
20	0.5	0.0	0.0		
30	0.2	0.0			
40	0.0	0.0			
50	0.0				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.06	0.06	0.08	0.10	0.11
5	0.08	0.08	0.08	0.12	0.08
10	0.08	0.09	0.07	0.32	
15	0.08	0.08	0.22		
20	0.08	0.16	0.30		
30	0.10	0.20			
40	0.11	0.35			
50	0.23				

Table 32C

DeGray
8/23/71

Chloride (ppm)

Depth (m)	1	7	10	12	13
0	2.2	2.7	2.5	2.5	2.6
5	2.6	2.4	2.3	2.2	2.3
10	2.7	2.6	2.3	2.6	
15	2.4	2.7	2.9		
20	2.5	2.5	2.4		
30	2.3	2.1			
40	2.3	2.2			
50	2.1				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.07	0.07	0.06	0.10	0.06
5	0.06	0.07	0.05	0.07	0.06
10	0.07	0.05	0.06	0.05	
15	0.05	0.05	0.04		
20	0.06	0.06	0.05		
30	0.05	0.04			
40	0.05	0.05			
50	0.06				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	4.6	6.1	3.0	3.4	6.6
5	5.0	5.4	6.1	<2.0	4.6
10	3.6	2.6	5.6	7.2	
15	3.8	5.1	5.3		
20	4.0	7.0	3.6		
30	3.1	4.0			
40	5.3	5.6			
50	9.3				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	0	3	13	12	12
5	3	7	3	9	7
10	4	6	5	9	
15	6	5	6		
20	6	5	15		
30	5	5			
40	4	9			
50	0				

Table 32D

DeGray
8/23/71

Iron, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.012	0.054	0.035	0.016	0.052
5	0.029	0.009	0.020	0.36	0.250
10	0.036	0.081	2.10	10.4	
15	0.087	0.700	3.70		
20	0.110	2.30	4.60		
30	0.173	3.80			
40	0.258	10.70			
50	1.20				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.012	0.008	0.010	0.010	0.020
5	0.016	0.002	0.008	0.022	0.051
10	0.012	0.038	0.010	0.092	
15	0.022	0.004	0.003		
20	0.031	0.007	0.005		
30	0.070	0.005			
40	0.084	0.008			
50	0.104				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.014	0.018	0.024	0.000	0.010
5	0.005	0.012	0.092	0.016	0.510
10	0.022	0.700	2.40	2.90	
15	0.005	1.00	1.60		
20	0.008	1.50	2.00		
30	0.174	2.00			
40	1.00	4.20			
50	6.40				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.009	0.018	0.026	0.024	0.020
5	0.013	0.014	0.026	0.055	0.047
10	0.021	0.005	0.008	0.014	
15	0.064	0.004	0.004		
20	0.074	0.005	0.004		
30	0.094	0.004			
40	0.024	0.008			
50	0.023				

Table 32E

DeGray
8/23/71

Copper, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.008	0.001	0.013	0.010	0.020
5	0.010	0.010	0.012	0.005	0.016
10	0.009	0.016	0.008	0.013	
15	0.009	0.008	0.014		
20	0.008	0.008	0.011		
30	0.016	0.014			
40	0.010	0.011			
50	0.019				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.015	0.015	0.022	0.020	0.013
5	0.017	0.024	0.013	0.015	0.018
10	0.017	0.020	0.016	0.022	
15	0.017	0.013	0.015		
20	0.014	0.018	0.015		
30	0.023	0.018			
40	0.015	0.018			
50	0.016				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.005	0.002	0.006	0.006	0.006
5	0.006	0.007	0.008	0.004	0.000
10	0.003	0.006	0.000	0.005	
15	0.009	0.006	0.005		
20	0.006	0.004	0.005		
30	0.006	0.010			
40	0.002	0.010			
50	0.011				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.008	0.004	0.002	0.018
5	0.004	0.000	0.005	0.011	0.008
10	0.000	0.008	0.006	0.018	
15	0.005	0.010	0.004		
20	0.011	0.052	0.002		
30	0.007	0.002			
40	0.007	0.010			
50	0.009				

Table 32F

DeGray
8/23/71

Cobalt, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.002	0.002	0.000	0.002
5	0.000	0.001	0.002	0.000	0.003
10	0.000	0.001	0.004	0.004	
15	0.000	0.002	0.001		
20	0.000	0.003	0.002		
30	0.001	0.004			
40	0.001	0.004			
50	0.006				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.001	0.003	0.000	0.000
5	0.001	0.000	0.002	0.000	0.003
10	0.000	0.001	0.002	0.003	
15	0.000	0.002	0.002		
20	0.000	0.001	0.002		
30	0.000	0.001			
40	0.001	0.000			
50	0.003				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.001	0.003	0.000	0.001
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.001	0.000			
40	0.001	0.001			
50	0.001				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.002	0.002	0.001	0.000
5	0.002	0.002	0.001	0.001	0.000
10	0.002	0.003	0.001	0.002	
15	0.002	0.002	0.002		
20	0.002	0.003	0.001		
30	0.003	0.002			
40	0.002	0.001			
50	0.001				

Table 32G

DeGray
8/23/71

Zinc, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.016	0.003	0.020	0.006	0.016
5	0.004	0.007	0.002	0.004	0.002
10	0.004	0.009	0.003	0.007	
15	0.012	0.002	0.002		
20	0.006	0.003	0.010		
30	0.021	0.006			
40	0.010	0.009			
50	0.016				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.004	0.003	0.003	0.017
5	0.017	0.003	0.003	0.011	0.017
10	0.004	0.004	0.002	0.010	
15	0.026	0.000	0.000		
20	0.004	0.004	0.003		
30	0.007	0.004			
40	0.010	0.002			
50	0.004	0.007			

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.003	0.001	0.017
5	0.001	0.000	0.000	0.002	0.002
10	0.001	0.002	0.002	0.005	
15	0.000	0.001	0.001		
20	0.000	0.001	0.004		
30	0.002	0.002			
40	0.000	0.002			
50	0.003				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.008	0.003	0.002	0.024
5	0.002	0.000	0.018	0.007	0.004
10	0.001	0.000	0.001	0.011	
15	0.000	0.000	0.000		
20	0.001	0.001	0.001		
30	0.001	0.000			
40	0.007	0.001			
50	0.000				

Table 32H

DeGray
8/23/71

Silver, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.026	0.007	0.004	0.012	0.001
5	0.009	0.014	0.001	0.008	0.000
10	0.004	0.013	0.007	0.001	
15	0.003	0.008	0.008		
20	0.002	0.006	0.013		
30	0.002	0.002			
40	0.001	0.000			
50	0.004				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.003	0.000	0.001	0.002
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.003	0.000	0.002	
15	0.001	0.000	0.000		
20	0.001	0.004	0.003		
30	0.001	0.001			
40	0.003	0.000			
50	0.001				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 33A

DeGray
9/11/71
pH

Depth (m)	Station No. 1	7	10	12	13
0	6.7	7.0	7.1	7.2	7.4
5	7.0	7.1	7.1	7.2	6.9
10	6.3	6.5	6.7	6.7	
15	6.5	6.7	6.7		
20	6.5	6.7	6.7		
30	6.5	6.7			
40	6.5	6.7			
50	6.9				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	33	34	35	39	46
5	31	34	35	39	55
10	32	33	39	53	
15	32	33	41		
20	32	35	43		
30	32	41			
40	35	53			
50	60				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	9.0	9.2	10.0	11.6	13.2
5	9.0	9.2	10.4	11.6	16.8
10	9.1	9.1	9.9	12.0	
15	9.1	9.4	10.2		
20	9.1	9.4	10.7		
30	9.3	10.1			
40	10.2	11.8			
50	10.2				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.8	1.8	1.9	2.0	2.2
5	1.8	1.8	1.9	2.0	2.4
10	2.1	1.7	1.8	2.2	
15	1.9	1.8	1.9		
20	1.9	1.9	2.0		
30	2.0	2.0			
40	2.0	2.6			
50	2.8				

Table 33B

DeGray
9/11/71

Sodium (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	2.4	2.1	2.3	2.3	2.2
5	2.2	2.2	2.3	2.2	2.6
10	2.0	2.1	2.3	2.4	
15	2.0	2.0	2.2		
20	2.1	2.0	2.3		
30	2.1	2.0			
40	2.4	2.3			
50	2.1				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.7	1.5	1.7	1.6	1.3
5	1.5	1.5	1.6	1.5	1.2
10	1.6	1.5	1.4	1.6	
15	1.6	1.5	1.6		
20	1.6	1.5	1.7		
30	1.7	1.7			
40	1.7	2.0			
50	2.0				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	0.4	0.6	0.5	0.4	0.4
5	0.6	0.5	0.6	0.4	0.2
10	0.5	0.3	0.4	0.0	
15	0.9	0.5	0.4		
20	0.9	0.5	0.6		
30	0.8	0.5			
40	0.5	0.3			
50	0.9				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.19	0.07	0.08	0.07	0.07
5	0.17	0.08	0.09	0.07	0.05
10	0.10	0.09	0.09	0.53	
15	0.09	0.10	0.28		
20	0.11	0.11	0.29		
30	0.10	0.18			
40	0.10	0.28			
50	0.39				

Table 33C

DeGray
9/11/71

Chloride (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	3.0	2.8	2.8	2.8	2.8
5	3.2	2.5	2.5	2.5	2.6
10	2.5	2.6	2.2	2.0	
15	2.2	2.3	2.3		
20	2.4	2.2	2.3		
30	2.1	2.2			
40	2.3	2.3			
50	2.3				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.07	0.08	0.08	0.17	0.09
5	0.07	0.09	0.06	0.08	0.15
10	0.10	0.05	0.13	0.04	
15	0.09	0.05	0.09		
20	0.08	0.06	0.04		
30	0.07	0.04			
40	0.06	0.08			
50	0.12				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	7.2		8.5	7.3	7.8
5	4.0	9.4	8.0	5.7	8.6
10	8.5	8.0	8.0	11.0	
15	5.8	5.6	8.0		
20	7.2	5.8	10.4		
30	11.8	6.2			
40	8.5	11.4			
50	12.0				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	14	8	19	25	13
5	9	16	21	24	14
10	13	14	21	24	
15	14	4	14		
20	12	9	20		
30	8	9			
40	5	13			
50	1				

Table 33D

DeGray
9/11/71

Iron, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.082	0.045	0.034	0.098	0.028
5	0.017	0.013	0.048	0.024	0.043
10	0.078	0.102	2.15	10.2	
15	0.073	0.500	4.10		
20	0.153	1.90	5.10		
30	0.147	3.60			
40	0.90	9.90			
50	18.0				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.008	0.005	0.004	0.008	0.009
5	0.003	0.013	0.009	0.010	0.051
10	0.020	0.016	0.002	0.033	
15	0.032	0.001	0.001		
20	0.025	0.001	0.003		
30	0.039	0.000			
40	0.025	0.006			
50	0.090				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.067	0.037	0.023	0.031	0.002
5	0.001	0.032	0.022	0.002	0.151
10	0.089	0.507	2.00	2.30	
15	0.001	0.90	1.60		
20	0.017	1.50	2.10		
30	0.40	2.00			
40	2.00	3.90			
50	6.50				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.019	0.018	0.020	0.028	0.029
5	0.009	0.014	0.022	0.030	0.096
10	0.025	0.003	0.006	0.008	
15	0.052	0.003	0.003		
20	0.064	0.003	0.006		
30	0.053	0.004			
40	0.013	0.009			
50	0.024				

Table 33E

DeGray
9/11/71

Copper, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.012	0.008	0.013	0.011	0.007
5	0.016	0.018	0.016	0.012	0.014
10	0.014	0.015	0.009	0.012	
15	0.010	0.008	0.013		
20	0.016	0.008	0.011		
30	0.020	0.011			
40	0.018	0.016			
50	0.015				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.018	0.022	0.018	0.019	0.019
5	0.018	0.020	0.018	0.019	0.019
10	0.027	0.019	0.020	0.022	
15	0.022	0.019	0.019		
20	0.021	0.018	0.019		
30	0.016	0.019			
40	0.019	0.020			
50	0.018				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.008	0.005	0.003	0.010	0.009
5	0.004	0.005	0.013	0.001	0.011
10	0.005		0.006	0.005	
15	0.009				
20	0.011	0.004	0.007		
30	0.008	0.002			
40	0.006	0.009			
50	0.005				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.055	0.011	0.000	0.006	0.008
5	0.005	0.004	0.004	0.005	0.005
10	0.007		0.004	0.003	
15	0.009		0.002		
20	0.002	0.008	0.005		
30	0.014	0.010			
40	0.012	0.015			
50	0.008				

Table 33F

DeGray
9/11/71

Cobalt, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.002	0.001	0.001	0.002	0.002
5	0.004	0.003	0.003	0.005	0.002
10	0.004	0.002	0.006	0.006	
15	0.003	0.003	0.005		
20	0.002	0.006	0.007		
30	0.005	0.006			
40	0.005	0.009			
50	0.004				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.003	0.003	0.001	0.000
5	0.000	0.002	0.002	0.000	0.000
10	0.004	0.005	0.002	0.002	
15	0.004	0.002	0.002		
20	0.001	0.004	0.005		
30	0.004	0.003			
40	0.005	0.004			
50	0.000				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.007	0.000	0.003
5	0.000	0.000	0.000	0.005	0.003
10	0.000	0.000	0.000	0.000	
15	0.000	0.010	0.006		
20	0.000	0.007	0.000		
30	0.004	0.000			
40	0.000	0.003			
50	0.000				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.008	0.000	0.000
10	0.005	0.000	0.000	0.000	
15	0.047	0.000	0.000		
20	0.000	0.000			
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Table 33G

DeGray
9/11/71

Zinc, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.015	0.023	0.018	0.025	0.009
5	0.007	0.021	0.031	0.016	0.017
10	0.008	0.024	0.022	0.030	
15	0.012	0.026	0.030		
20	0.020	0.024	0.022		
30	0.018	0.018			
40	0.018	0.028			
50	0.036				

Zinc, particualte (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.014	0.004	0.000	0.000
5	0.004	0.000	0.000	0.004	0.000
10	0.014	0.019	0.000	0.002	
15	0.011	0.000	0.001		
20	0.009	0.002	0.002		
30	0.002	0.003			
40	0.000	0.014			
50	0.009				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.001	0.001	0.001	0.001
5	0.000	0.001	0.001	0.000	0.001
10	0.000	0.001	0.002	0.001	
15	0.000	0.001	0.001		
20	0.000	0.001	0.001		
30	0.000	0.003			
40	0.000				
50	0.003				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.001
5	0.000	0.000	0.000	0.000	0.001
10	0.002	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.001	0.000	0.000		
30	0.000	0.000			
40	0.001	0.001			
50	0.000				

Table 33H

DeGray
9/11/71

Silver, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.000	0.000	0.001	0.004	0.001
5	0.000	0.000	0.001	0.000	0.005
10	0.000	0.000	0.003	0.001	
15	0.000	0.001	0.001		
20	0.000	0.001	0.000		
30	0.000	0.000			
40	0.000	0.003			
50	0.000				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.002	0.000	0.000
10	0.001	0.000	0.001	0.000	
15	0.008	0.001	0.004		
20	0.000	0.001	0.000		
30	0.002	0.000			
40	0.000	0.003			
50	0.000				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 34A

DeGray
10/2/71
pH

Depth (m)	Station No. 1	7	10	12	13
0	7.4	7.3	7.1	7.4	7.4
5	7.1	7.1	7.0	7.1	6.9
10	6.7	6.5	6.5	6.7	
15	6.7	6.5	6.7		
20	6.7	6.5	6.5		
30	6.7	6.5			
40	6.7	6.5			
50	6.9				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	35	33	34	39	51
5	34	35	38	39	53
10	31	34	44	52	
15	32	36	42		
20	31	37	47		
30	33	43			
40	41	57			
50	55				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	9.0	9.2	9.9	11.9	16.1
5	8.7	9.0	10.4	11.9	18.2
10	8.6	9.6	10.8	13.0	
15	8.8	9.0	10.2		
20	9.1	10.1	11.0		
30	9.0	10.4			
40	9.8	12.4			
50	12.4				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.9	1.7	1.9	2.0	2.2
5	1.9	1.8	1.9	2.1	2.3
10	1.9	1.7	1.8	2.2	
15	1.8	1.8	2.0		
20	1.8	1.8	2.0		
30	1.9	1.9			
40	2.0	2.5			
50	2.8				

Table 35B

DeGray
10/2/71

Sodium (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	2.0	2.2	2.2	2.3	2.4
5	2.2	2.2	2.2	2.3	2.6
10	2.1	2.1	2.3	2.3	
15	2.0	2.1	2.2		
20	2.1	2.0	2.2		
30	2.0	2.1			
40	2.1	2.2			
50	2.1				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.6	1.5	1.5	1.4
5	1.5	1.6	1.6	1.5	1.4
10	1.6	1.5	1.4	1.5	
15	1.6	1.5	1.6		
20	1.7	1.6	1.7		
30	1.6	1.7			
40	1.6	2.0			
50	1.8				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	0.3	0.3	0.4	0.1	0.5
5	0.2	0.4	0.4	0.2	0.5
10	2.5	0.8	0.4	0.7	
15	0.8	0.2	0.6		
20	0.6	0.4	0.5		
30	0.4	0.2			
40	0.3	0.4			
50	0.8				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.10	0.07	0.10	0.06	0.08
5	0.14	0.09	0.06	0.08	0.06
10	0.29	0.13	0.12	0.60	
15	0.10	0.12	0.26		
20	0.12	0.18	0.38		
30	0.12	0.26			
40	0.13	0.39			
50	0.35				

Table 34C

DeGray
10/2/71
Chloride (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	2.4	2.8	2.8	3.2	2.9
5	3.0	3.0	2.7	2.7	3.6
10	2.6	2.9	2.2	2.2	
15	2.8	2.1	2.4		
20	2.7	3.3			
30	2.5				
40	2.8				
50	1.4				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.11	0.16	0.16	0.14	0.15
5	0.12	0.10	0.12	0.16	0.30
10	0.09	0.07	0.09	0.08	
15	0.11	0.07	0.07		
20	0.10	0.11	0.06		
30	0.08	0.06			
40	0.08	0.11			
50	0.08				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	2.0	2.0	4.8	4.5	5.2
5	4.5	4.6	3.8	3.8	5.4
10	4.5	4.3	6.6	6.6	
15	2.2	4.0	5.4	5.4	
20	2.0	4.2	5.8	5.8	
30	4.8	6.4			
40	5.8	9.2			
50	9.2				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	5	5	6	9	6
5	2	7	8	9	2
10	2	6	8	7	
15	1	6	4		
20	4	6	8		
30	1	8			
40	4	11			
50	6				

Table 34D

DeGray
10/2/71

Iron, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.013	0.028	0.034	0.063	0.016
5	0.031	0.017	0.052	0.064	0.032
10	0.028	0.228	4.00	13.3	
15	0.088	1.10	4.70		
20	0.125	2.40	5.00		
30	0.154	4.60			
40	1.70	12.6			
50	17.3				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.010	0.011	0.019	0.026	0.057
5	0.010	0.015	0.034	0.046	0.144
10	0.026	0.017	0.026	0.060	
15	0.024	0.008	0.016		
20	0.040	0.017	0.013		
30	0.039	0.019			
40	0.033	0.066			
50	0.580				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.015	0.019	0.003	0.001
5	0.002	0.016	0.036	0.025	0.142
10	0.142	1.10	2.60	2.80	
15	0.002	1.60	1.90		
20	0.024	2.20	2.20		
30	0.500	4.70			
40	2.10				
50	6.50				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.016	0.015	0.025	0.025	0.040
5	0.018	0.021	0.036	0.048	0.130
10	0.040	0.010	0.014	0.010	
15	0.036	0.005	0.007		
20	0.057	0.005	0.008		
30	0.047	0.012			
40	0.016	0.019			
50	0.058				

Table 34E

DeGray
10/2/71

Copper, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.016	0.006	0.006	0.015	0.007
5	0.018	0.011	0.008	0.005	0.014
10	0.023	0.017	0.004	0.005	
15	0.015	0.004	0.009		
20	0.017	0.007	0.007		
30	0.016	0.007			
40	0.003	0.025			
50	0.011				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.020	0.017	0.019	0.017	0.021
5	0.023	0.020	0.021	0.020	0.022
10	0.022	0.020	0.026	0.019	
15	0.022	0.019	0.020		
20	0.024	0.019	0.018		
30	0.021	0.023			
40	0.024	0.021			
50	0.022				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.008	0.002	0.012	0.012	0.014
5	0.025	0.006	0.011	0.020	0.015
10	0.017	0.006	0.002	0.018	
15	0.009	0.012	0.002		
20	0.016	0.001	0.003		
30	0.007	0.009			
40	0.007				
50	0.019				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.001	0.010	0.002
5	0.000	0.001	0.002	0.004	0.002
10	0.000	0.000	0.006	0.000	
15	0.004	0.001	0.001		
20	0.001	0.000	0.002		
30	0.000	0.006			
40	0.020	0.011			
50	0.007				

Table 34F

DeGray
10/2/71

Cobalt, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.000	0.001	0.002	0.000	0.000
5	0.001	0.001	0.003	0.000	0.000
10	0.002	0.001	0.002	0.003	
15	0.000	0.001	0.003		
20	0.000	0.003	0.000		
30	0.002	0.005			
40	0.003	0.006			
50	0.006				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.002	0.000	0.001	0.004
5	0.003	0.003	0.000	0.002	0.001
10	0.004	0.003	0.002	0.004	
15	0.004	0.002	0.004		
20	0.004	0.003	0.003		
30	0.004				
40	0.004				
50	0.002				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.004	0.000	0.000	0.000
5	0.000	0.001	0.000	0.001	0.002
10	0.000	0.000	0.001	0.003	
15	0.000	0.001	0.001		
20	0.000	0.002	0.001		
30	0.000	0.000			
40	0.003	0.003			
50	0.009				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.000	0.000	0.000	0.000
5	0.004	0.001	0.000	0.000	0.000
10	0.002	0.000	0.001	0.000	
15	0.001	0.000	0.000		
20	0.002	0.000	0.000		
30	0.001	0.000			
40	0.000	0.000			
50	0.000				

Table 34G

DeGray
10/2/71

Zinc, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.007	0.010	0.014	0.006	0.005
5	0.004	0.013	0.010	0.009	0.010
10	0.011	0.016	0.014	0.015	
15	0.007	0.012	0.011		
20	0.010	0.015	0.008		
30	0.011	0.027			
40	0.012	0.074			
50	0.026				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.005	0.003	0.000	0.000
5	0.002	0.002	0.002	0.000	0.003
10	0.000	0.001	0.002	0.000	
15	0.000	0.007	0.003		
20	0.002	0.000	0.006		
30	0.007	0.013			
40	0.006	0.017			
50	0.006				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.001	0.000	0.000
5	0.000	0.001	0.002	0.000	0.000
10	0.000	0.002	0.007	0.001	
15	0.000	0.001	0.001		
20	0.000	0.001	0.001		
30	0.000	0.001			
40	0.001	0.004			
50	0.004				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.001	0.000	0.000	0.001
5	0.001	0.002	0.001	0.002	0.002
10	0.001	0.003	0.001	0.000	
15	0.000	0.003	0.000		
20	0.000	0.000	0.004		
30	0.004				
40	0.001				
50	0.001				

Table 34H

DeGray
10/2/71

Silver, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.010	0.000	0.003	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.005		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.003	0.002	0.002	0.003
5	0.003	0.002	0.003	0.006	0.003
10	0.005	0.002	0.002	0.003	
15	0.002	0.002	0.003		
20	0.003	0.002	0.002		
30	0.002	0.003			
40	0.002	0.003			
50	0.004				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 35A

DeGray
10/23/71

pH

Depth (m)	Station No. 1	7	10	12	13
0	7.1	7.1	7.0	6.9	7.2
5	7.1		6.7	6.7	6.9
10	6.5		6.7	6.7	
15	6.5		6.5		
20	6.5		6.5		
30	6.5	6.5			
40	6.5	6.3			
50	6.7				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	32	34	36	40	47
5	33		38	42	43
10	34		58	58	
15	34		42		
20	32		43		
30	33	40			
40	38	50			
50	6.9				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	8.8	9.0	10.1	11.4	14.2
5	10.3		10.2	11.4	13.8
10	9.1		11.6	16.4	
15	8.8		10.7		
20	9.1		10.4		
30	9.1	9.8			
40	10.0	13.8			
50	13.0				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.8	1.8	2.1	2.0	2.1
5	1.8		2.0	2.0	2.0
10	1.8		2.1	2.4	
15	1.8		2.0		
20	1.9		2.1		
30	1.9	2.2			
40	1.9	2.9			
50	3.2				

Table 35B

DeGray
10/23/71

Sodium (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	2.3	2.4	2.4	2.3	2.3
5	2.3		2.3	2.4	2.2
10	2.1		2.6	2.4	
15	2.2		2.3		
20	2.1		2.2		
30	2.0	2.1			
40	2.1	2.2			
50	2.2				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.2	1.4	1.3	1.3	1.4
5	1.3		1.3	1.3	1.6
10	1.4		1.3	1.1	
15	1.4		1.3		
20	1.4		1.4		
30	1.4	1.4			
40	1.4	1.8			
50	1.7				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	0.1	0.0	0.4	0.1	0.1
5	0.0		0.3	0.2	0.1
10	0.0		0.2	0.2	
15	0.4		0.1		
20	0.3		0.1		
30	0.4	0.0			
40	0.3	0.3			
50	0.0				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.09	0.04	0.03	0.03	0.03
5	0.07		0.04	0.04	0.08
10	0.06		0.06	0.06	
15	0.07		0.21		
20	0.04		0.23		
30	0.03	0.17			
40	0.06	0.26			
50	0.35				

Table 35C

DeGray
10/23/71
Chloride (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	2.5	2.8	2.8	2.5	2.3
5	2.5		2.5	2.7	3.0
10	2.1		2.4	2.4	
15	2.2		2.3		
20	2.3		2.5		
30	2.1	2.2			
40	2.2	2.7			
50	2.4				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.09	0.10	0.06	0.08	0.06
5	0.08		0.06	0.08	0.08
10	0.05		0.07	0.09	
15	0.09		0.04		
20	0.05		0.06		
30	0.07	0.06			
40	0.09	0.10			
50	0.05				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	2.0	4.0	3.0	2.3	2.8
5	3.2		2.2	2.0	2.0
10	3.6		2.6	2.0	
15	2.0		2.4		
20	3.2		2.4		
30	5.2	4.1			
40	2.0	6.1			
50	5.3				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	6	7	7	10	14
5	7		8	13	14
10	1		8	7	
15	0		15		
20	4		8		
30	7	13			
40	4	8			
50	7				

Table 35D

DeGray
10/23/71

Iron, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.016	0.036	0.001	0.000	0.004
5	0.005		0.085	0.046	0.029
10	0.094		7.20	4.20	
15	0.112		5.10		
20	0.108		5.10		
30	0.155	4.40			
40	2.10	14.8			
50	20.8				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.015	0.029	0.029	0.030	0.030
5	0.007		0.020	0.031	0.056
10	0.019		0.026	0.114	
15	0.036		0.013		
20	0.042		0.099		
30	0.132	0.013			
40	0.058	0.018			
50	0.316				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.027	0.032	0.010	0.000	0.000
5	0.009	0.112	0.076	0.052	0.004
10	0.520	0.189	4.00	3.30	
15	0.015	0.634	2.40		
20	0.036	3.30	2.60		
30	0.700	2.40			
40	2.00	6.50			
50	6.90				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.015	0.024	0.035	0.062	0.023
5	0.015	0.153	0.045	0.045	0.036
10	0.002	0.118	0.004	0.029	
15	0.032	0.097	0.002		
20	0.056	0.025	0.002		
30	0.010	0.008			
40	0.010	0.017			
50	0.030				

Table 35E

DeGray
10/23/71

Copper, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.011	0.005	0.002	0.004	0.004
5	0.016		0.003	0.003	0.017
10	0.036		0.005	0.003	
15	0.024		0.006		
20	0.021		0.005		
30	0.033	0.008			
40	0.015	0.023			
50	0.019				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.018	0.018	0.020	0.022	0.018
5	0.020		0.018	0.018	0.022
10	0.016		0.014	0.021	
15	0.019		0.017		
20	0.020		0.019		
30	0.018	0.016			
40	0.022	0.017			
50	0.019				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.007	0.001	0.000	0.003	0.000
5	0.001		0.000	0.000	0.005
10	0.003		0.000	0.000	
15	0.007		0.007		
20	0.002		0.007		
30	0.006	0.000			
40	0.005	0.010			
50	0.004				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.021	0.008	0.002	0.008	0.012
5	0.012		0.002	0.004	0.013
10	0.012		0.004	0.007	
15	0.009		0.001		
20	0.004		0.008		
30	0.006	0.003			
40	0.004	0.012			
50	0.005				

Table 35F

DeGray
10/23/71

Cobalt, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.002	0.003	0.003	0.002	0.001
5	0.002		0.004	0.001	0.002
10	0.003		0.007	0.002	
15	0.002		0.006		
20	0.004		0.007		
30	0.004	0.005			
40	0.006	0.009			
50	0.008				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.003	0.001	0.002	0.002
5	0.002		0.002	0.002	0.001
10	0.003		0.001	0.002	
15	0.000		0.002		
20	0.002		0.002		
30	0.002	0.002			
40	0.003	0.002			
50	0.003				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.001	0.000	0.000
5	0.000		0.000	0.000	0.002
10	0.000		0.001	0.002	
15	0.000		0.002		
20	0.000		0.000		
30	0.000	0.000			
40	0.000	0.001			
50	0.001				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000		0.000	0.000	0.000
10	0.000		0.000	0.014	
15	0.016		0.034		
20	0.000		0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.018				

Table 35G

DeGray
10/23/71

Zinc, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.011	0.003	0.000	0.006	0.017
5	0.004		0.001	0.005	0.034
10	0.010		0.006	0.016	
15	0.010		0.012		
20	0.007		0.014		
30	0.014	0.011			
40	0.013	0.017			
50	0.027				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.019	0.006	0.005	0.007	0.006
5	0.018		0.002	0.006	0.019
10	0.016		0.000	0.009	
15	0.016		0.002		
20	0.006		0.003		
30	0.003	0.002			
40	0.004	0.007			
50	0.009				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.001	0.000	0.003	0.002
5	0.000		0.000	0.000	0.004
10	0.001		0.002	0.002	
15	0.001		0.003		
20	0.000		0.003		
30	0.001	0.002			
40	0.002	0.003			
50	0.005				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.001	0.012	0.003	0.002
5	0.002		0.001	0.001	0.006
10	0.000		0.000	0.002	
15	0.002		0.002		
20	0.002		0.002		
30	0.002	0.005			
40	0.001	0.001			
50	0.001				

Table 35H

DeGray
10/23/71

Silver, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.000	0.000	0.000	0.003	0.002
5	0.000		0.000	0.001	0.005
10	0.000		0.000	0.001	
15	0.000		0.000		
20	0.000		0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.002				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000		0.000	0.000	0.000
10	0.000		0.000	0.001	
15	0.000		0.000		
20	0.000		0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 36A

DeGray
12/4/71
pH

Depth (m)	Station No. 1	7	10	12	13
0	6.7	6.8	6.7	6.7	6.7
5	6.6	6.8	6.7	6.7	6.7
10	6.6	6.7	6.7	6.7	
15	6.3	6.7	6.7		
20	6.3	6.5	6.5		
30	6.5	6.5			
40	6.5	6.5			
50	6.7				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	35	34	39	41	40
5	35	35	38	42	40
10	32	33	39	44	
15	34	35			
20	33	41			
30	36	43			
40	39	46			
50	55				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	9.8	9.8	11.0	13.3	13.3
5	9.8	9.8	11.0	13.3	14.2
10	9.8	9.8	11.0	14.1	
15	9.0	9.8	11.2		
20	9.1	10.4	13.3		
30	9.8	10.4			
40	9.8	11.4			
50	13.3				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.9	2.0	2.1	2.0	2.0
5	1.9	2.0	2.1	2.3	2.0
10	1.9	2.0	2.1	2.2	
15	1.9	2.0	2.1		
20	2.0	2.2	2.4		
30	2.0	2.2			
40	2.2				
50	3.6				

Table 36B

DeGray
12/4/71

Sodium (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	1.9	1.9	2.0	2.0	2.4
5	1.9	1.9	1.9	2.0	2.0
10	1.8	1.9	2.2	2.0	
15	1.8	2.2	2.1		
20	3.0	1.8	2.0		
30	1.9	1.9			
40	1.8	2.2			
50	2.5				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.5	1.5	1.4	1.2
5	1.6	1.5	1.5	1.4	0.9
10	1.5	1.5	1.8	1.2	
15	1.6	1.8	1.5		
20	2.4	1.6	1.6		
30	1.7				
40	1.7				
50	2.2				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	0.6	0.7	1.5	1.1	0.7
5	0.8	0.7	1.0	0.9	0.8
10	0.9	0.8	0.8	0.7	
15	0.8	0.7	1.0		
20	0.7	2.5	4.1		
30	0.9	1.4			
40	1.1	3.3			
50	5.1				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.08	0.06	0.05	0.04	0.04
5	0.08	0.07	0.07	0.05	0.04
10	0.06	0.05	0.06	0.07	
15	0.06	0.06	0.05		
20	0.05	0.22	0.24		
30	0.08	0.12			
40	0.08	0.23			
50	0.24				

Table 36C

DeGray
12/4/71
Chloride (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	2.5	2.3	2.6	2.5	2.7
5	2.1	2.3	3.2	2.3	2.6
10	2.5	2.4	3.9	2.7	
15	2.1	2.6	3.7		
20	2.1	2.6	6.4		
30	2.3	2.3			
40	2.3	2.8			
50	2.4				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.09	0.08	0.11	0.11	0.08
5	0.08	0.07	0.12	0.09	0.09
10	0.08	0.08	0.07	0.10	
15	0.08	0.07	0.08		
20	0.08	0.06	0.05		
30	0.07	0.06			
40	0.06	0.07			
50	0.05				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	6.4	5.7	7.3	3.9	6.5
5	3.6	5.0	6.8	6.6	5.7
10	4.0	6.1	6.4	6.9	
15	5.3	3.6	5.1		
20	3.4	4.2	8.2		
30	5.4	6.6			
40	4.0	6.9			
50	7.8				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	3	4	1	4	5
5	2	4	4	10	5
10	10	1	10	8	
15	7	0	8		
20	2	7	11		
30	3	8			
40	2	5			
50	4				

Table 36D

DeGray
12/4/71

Iron, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.031	0.185	0.210	0.004	0.023
5	0.031	0.174	0.180	0.016	0.023
10	0.020	0.150	0.146	0.014	
15	0.980	0.170	0.214		
20	0.680	4.20	8.50		
30	1.14	4.52			
40	2.64	6.00			
50	2.58				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.046	0.220	0.310	0.054	0.044
5	0.035	0.260	0.255	0.045	0.094
10	0.060	0.220	0.304	0.114	
15	0.066	0.186	0.228		
20	0.065	0.033	0.079		
30	0.027	0.027			
40	0.033	0.039			
50	0.380				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.103	0.520	0.234	0.001	0.016
5	0.114	0.485	0.250	0.003	0.022
10	0.100	0.368	0.197	.0003	
15	0.910	2.04	0.184		
20	0.770	2.26	2.52		
30	1.24	2.16			
40	2.00				
50	5.68				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.089	0.010	0.074	0.019	0.000
5	0.095	0.019	0.068	0.044	0.000
10	0.082	0.021	0.068	0.025	
15	0.005	0.018	0.074		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.012	0.006			
50	0.033				

Table 36E

DeGray
12/4/71

Copper, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.009	0.013	0.009	0.002	0.008
5	0.010	0.011	0.010	0.007	0.010
10	0.008	0.012	0.009	0.008	
15	0.005	0.009	0.005		
20	0.004	0.003	0.005		
30	0.004	0.003			
40	0.004	0.006			
50	0.023				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.026	0.024	0.023	0.025	0.019
5	0.024	0.022	0.023	0.038	0.025
10	0.027	0.022	0.022	0.030	
15	0.025	0.027	0.021		
20	0.023	0.026	0.025		
30	0.023	0.023			
40	0.026	0.027			
50	0.031				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.005	0.005	0.004	0.002
5	0.005	0.006	0.006	0.006	0.005
10	0.005	0.006	0.007	0.006	
15	0.003	0.006	0.002		
20	0.009	0.004	0.004		
30	0.004	0.004			
40	0.005	0.005			
50	0.021				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.000	0.000	0.000	0.000
5	0.002	0.000	0.000	0.002	0.000
10	0.010	0.000	0.000	0.000	
15	0.006	0.028	0.000		
20	0.017	0.000	0.000		
30	0.005	0.000			
40	0.007	0.000			
50	0.010				

Table 36F

DeGray
12/4/71

Cobalt, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.002	0.000	0.000	0.001	0.001
5	0.002	0.000	0.001	0.003	0.000
10	0.002	0.000	0.001	0.000	
15	0.003	0.000	0.000		
20	0.002	0.000	0.000		
30	0.002	0.000			
40	0.003	0.003			
50	0.003				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000		0.000	0.000	
15	0.000	0.000	0.003		
20	0.000	0.004	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.002				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.002	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.028	0.000		
20	0.000	0.000	0.010		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Table 36G

DeGray
12/4/71

Zinc, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.003	0.220	0.000	0.000	0.058
5	0.012	0.009	0.000	0.126	0.220
10	0.006	0.005	0.012	0.005	
15	0.009	0.001	0.086		
20	0.011	0.054	0.130		
30	0.027	0.059			
40	0.086	0.120			
50	0.100				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.006	0.000	0.000	0.000	0.000
5	0.000	0.008	0.002	0.008	0.000
10	0.003	0.005	0.005	0.005	
15	0.000	0.005	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.004	0.010			
50	0.008				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.004	0.001	0.000	0.000
5	0.001	0.001	0.005	0.001	0.001
10	0.003	0.001	0.002	0.000	
15	0.001	0.001	0.001		
20	0.001	0.005	0.004		
30	0.002	0.005			
40	0.005	0.005			
50	0.001				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.001	0.001	0.001	0.001
5	0.001	0.002	0.002	0.002	0.000
10	0.001	0.001	0.001	0.001	
15	0.001	0.001	0.002		
20	0.001	0.001	0.001		
30	0.000	0.001			
40	0.001	0.001			
50	0.001				

Table 36H

DeGray
12/4/71
Silver, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.000	0.000	0.009	0.000	0.000
5	0.000	0.000	0.001	0.002	0.000
10	0.000	0.000	0.000	0.006	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.001	0.004	0.000		
40	0.001	0.007			
50	0.002				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.003	0.000	
15	0.000	0.000	0.000		
20	0.000	0.000	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 37A

DeGray
1/10/72
pH

Depth (m)	Station No. 1	7	10	12	13
0	6.4	6.7	6.6	6.7	6.7
5	6.4	6.6	6.6	6.7	6.7
10	6.4	6.7	6.6	6.8	
15	6.4	6.6	6.6	6.7	
20	6.4	6.6	6.5		
30	6.4	6.4	6.5		
40	6.5	6.5			
50	6.5				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	34	34	22	28	28
5	37	34	32	27	28
10	32	35	24	28	26
15	33	34	21	26	
20	34	34	24		
30	37	42	22		
40	36	42			
50	60				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	8.8	8.8	6.1	7.9	7.7
5	8.6	8.8	8.6	7.9	7.0
10	8.9	9.0	6.1	7.4	7.0
15	8.6	8.8	6.4	7.7	
20	8.8	9.0	5.6		
30	8.8	9.6	5.6		
40	8.8	9.6			
50	10.2				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	2.0	1.9	1.3	1.5	1.6
5	2.0	1.9	2.0	1.6	1.5
10	1.9	1.9	1.4	1.5	1.6
15	1.9	1.9	1.4	1.5	
20	1.9	1.9	1.3		
30	2.0	2.1	1.2		
40	2.2	2.1			
50	2.6				

Table 37B

DeGray
1/10/72

Sodium (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	2.1	2.0	1.6	2.0	2.0
5	2.1	2.1	2.3	2.0	2.2
10	2.1	2.1	1.7	2.2	2.3
15	2.1	2.1	1.6	2.3	
20	2.1	2.1	1.5		
30	2.1	2.1			
40	2.0	2.0			
50	2.1				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.5	1.5	1.6	1.0	1.0
5	1.5	1.4	1.8	1.0	0.9
10	1.4	1.5	1.6	1.0	1.0
15	1.5	1.4	1.4	1.1	
20	1.5	1.4	1.6		
30	1.6	1.5	1.6		
40	1.5	1.6			
50	1.6				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	0.5	1.0	1.6	0.6	0.3
5	0.6	1.0	0.8	0.4	0.1
10	0.5	1.1	0.4	0.2	0.3
15	0.4	1.1	0.6	0.3	
20	0.7	0.6	0.6		
30	0.6	0.8	0.6		
40	0.3	1.1			
50	0.6				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.03	0.08	0.05	0.03	0.02
5	0.10	0.03	0.02	0.02	0.01
10	0.02	0.02	0.04	0.02	0.01
15	0.03	0.02	0.04	0.04	
20	0.02	0.02	0.03		
30	0.05	0.25	0.04		
40	0.06	0.24			
50	0.21				

Table 37C

DeGray
1/10/72
Chloride (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	2.3	2.5	2.1	2.1	2.6
5	2.1	2.5	2.5	2.2	2.5
10	2.1	2.0	2.2	2.1	2.1
15	1.8	2.5	2.1	2.5	
20	2.4	2.1	2.3		
30	1.8	1.7	2.1		
40	1.8	2.0			
50	1.9				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.08	0.09	0.07	0.07	0.07
5	0.07	0.09	0.07	0.06	0.05
10	0.06	0.07	0.05	0.06	0.05
15	0.06	0.06	0.05	0.05	
20	0.06	0.06	0.05		
30	0.06	0.05	0.05		
40	0.05	0.05			
50	0.05				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	8.0	6.6	6.4	6.6	5.8
5	4.9	6.4	5.8	4.4	6.1
10	6.5	8.0	6.5	4.4	6.1
15	6.5	7.3	4.0	4.0	
20	5.4	3.8	4.6		
30	8.2	6.6	5.4		
40	9.5	8.2			
50	11.3				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	6	6	0	0	0
5	10	6	0	0	0
10	10	4	2	0	0
15	7	8	1	0	
20	11	6	0		
30	7	2	0		
40	6	3			
50	7				

Table 37D

DeGray
1/10/72

Iron, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.006	0.062	0.013	0.019	0.018
5	0.026	0.059	0.019	0.028	0.024
10	0.036	0.065	0.016	0.023	0.030
15	0.029	0.066	0.025	0.050	
20	0.017	0.104	0.021		
30	2.30	5.00	0.032		
40	3.00	5.10			
50	8.40				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.017	0.039	0.097	0.059	0.042
5	0.009	0.041	0.094	0.057	0.041
10	0.010	0.036	0.097	0.068	0.064
15	0.014	0.050	0.130	1.60	
20	0.015	0.059	0.146		
30	0.010	0.020	0.155		
40	0.004	0.017			
50	0.035				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.150	0.019	0.037	0.019
5	0.000	0.137	0.032	0.052	0.006
10	0.000	0.150	0.025	0.042	0.012
15	0.000	0.150	0.033	0.096	
20	0.004	0.206	0.030		
30	1.80	2.10	0.060		
40	1.70	2.10			
50	3.60				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.108	0.047	0.015	0.012	0.010
5	0.114	0.053	0.019	0.011	0.006
10	0.120	0.051	0.026	0.006	0.005
15	0.148	0.086	0.043	0.074	
20	0.187	0.052	0.025		
30	0.015	0.002	0.037		
40	0.001	0.005			
50	0.005				

Table 37E

DeGray
1/10/72

Copper, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.003	0.008	0.004	0.005	0.007
5	0.005	0.006	0.007	0.006	0.006
10	0.006	0.008	0.007	0.007	0.007
15	0.005	0.006	0.007	0.014	
20	0.003	0.006	0.006		
30	0.009	0.006	0.010		
40	0.006	0.006			
50	0.008	0.006			

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.022	0.015	0.009	0.013	0.010
5	0.016	0.016	0.014	0.015	0.015
10	0.019	0.016	0.014	0.010	0.016
15	0.021	0.019	0.015	0.020	
20	0.019	0.015	0.014		
30	0.017	0.013	0.016		
40	0.005	0.018			
50	0.012				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.007	0.002	0.005	0.001	0.004
5	0.005	0.005	0.003	0.002	0.007
10	0.000	0.006	0.007	0.003	0.004
15	0.005	0.002	0.004	0.004	
20	0.004	0.006	0.005		
30	0.003	0.004	0.000		
40	0.009	0.005			
50	0.014				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.000	0.002	0.004	0.001
5	0.000	0.004	0.003	0.000	0.007
10	0.000	0.000	0.002	0.020	0.025
15	0.008	0.000	0.000	0.011	
20	0.003	0.000	0.004		
30	0.008	0.005	0.008		
40	0.008	0.008			
50	0.005				

Table 37F

DeGray
1/10/72

Cobalt, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.001	0.001	0.001	0.001	0.000
5	0.001	0.002	0.001	0.001	0.001
10	0.000	0.001	0.001	0.000	0.002
15	0.002	0.001	0.001	0.002	
20	0.001	0.002	0.001		
30	0.003	0.003	0.000		
40	0.003	0.002			
50	0.004				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.001	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.000			
50	0.000				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.001	0.002	0.002	0.000
5	0.001	0.001	0.000	0.002	0.001
10	0.000	0.002	0.002	0.001	0.001
15	0.001	0.002	0.002	0.001	
20	0.002	0.002	0.002		
30	0.003	0.003	0.000		
40	0.002	0.003			
50	0.003				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
15	0.005	0.000	0.000	0.002	
20	0.005	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.000			
50	0.000				

Table 37G

DeGray
1/10/72

Zinc, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.005	0.009	0.004	0.006	0.009
5	0.019	0.008	0.008	0.006	0.012
10	0.002	0.009	0.011	0.010	0.010
15	0.011	0.009	0.008	0.015	
20	0.007	0.009	0.008		
30	0.011	0.011	0.006		
40	0.021	0.010			
50	0.028				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
15	0.001	0.002	0.000	0.006	
20	0.001	0.000	0.000		
30	0.210	0.000	0.000		
40	0.000	0.004			
50	0.001				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.002	0.002	0.002
5	0.000	0.001	0.002	0.000	0.002
10	0.016	0.000	0.001	0.004	0.001
15	0.002	0.001	0.001	0.001	
20	0.001	0.000	0.002		
30	0.002	0.002	0.000		
40	0.003	0.003			
50	0.003				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.002	0.002	0.002
5	0.000	0.000	0.002	0.000	0.002
10	0.000	0.000	0.001	0.004	0.001
15	0.000	0.001	0.001	0.001	
20	0.000	0.000	0.002		
30	0.000	0.000	0.000		
40	0.000				
50	0.000				

Table 37H

DeGray
1/10/72
Silver, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.004	0.001	0.000	0.000	0.000
5	0.001	0.001	0.000	0.000	0.000
10	0.000	0.001	0.000	0.000	0.000
15	0.001	0.000	0.000	0.000	
20	0.000	0.001	0.000		
30	0.000	0.000			
40	0.000	0.000			
50	0.000				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.001	0.000
15	0.000	0.000	0.000	0.000	
20	0.000	0.001	0.000		
30	0.000	0.001			
40	0.000	0.000			
50	0.000				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 38A

DeGray
2/5/72
pH

Depth (m)	Station No. 1	7	10	12	13
0	6.7	6.9	6.9	6.9	7.1
5	6.7	6.9	6.9	7.0	7.0
10	6.7	6.9	6.9	7.0	7.0
15	6.7	6.9	6.9	6.9	
20	6.7	6.9	6.9		
30	6.7	6.8	6.9		
40	6.9				
50	6.9				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	35	31	33	28	26
5	35	32	28	29	25
10	36	34	25	26	26
15	35	33	26	29	
20	38	32	25		
30	38	32	25		
40	37	31			
50	37				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	9.1	8.1	8.8	7.2	7.5
5	8.9	8.4	7.2	7.1	7.3
10	8.9	8.5	7.2	7.1	7.4
15	8.6	8.3	7.0	7.1	
20	9.1	8.2	6.5		
30	9.1	8.2	7.2		
40	8.9	8.2			
50	8.8				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.9	1.7	1.6	1.4	1.5
5	1.9	1.7	1.5	1.4	1.4
10	1.9	1.7	1.5	1.4	1.5
15	2.0	1.7	1.5	1.4	
20	2.0	1.7	1.5		
30	2.0	1.7	1.5		
40	2.0	1.7			
50	2.0				

Table 38B

DeGray
2/5/72

Sodium (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	2.1	2.0	2.5	2.6	2.5
5	2.4	2.1	2.3	2.7	2.5
10	2.3	2.0	2.4	2.3	2.4
15	2.1	2.1	2.4	2.4	
20	2.1	2.7	1.8		
30	2.2	2.4	2.6		
40	2.1	2.2			
50	2.2				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.6	1.4	1.6	1.0	0.7
5	1.7	1.5	1.4	1.0	0.7
10	1.6	1.4	1.6	0.8	0.7
15	1.5	1.4	1.4	0.8	
20	1.5	18.	1.0		
30	1.5	1.6	1.6		
40	1.5	1.4			
50	1.5				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	1.6	1.5	1.9	1.5	1.9
5	1.3	1.6	2.3	1.9	2.0
10	0.2	1.6	1.3	1.8	2.1
15	1.0	1.2	2.1	2.4	
20	0.7	2.1	2.3		
30	0.8	2.3	1.5		
40	0.8	1.5			
50	0.0				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.06	0.06	0.07	0.06	0.05
5	0.08	0.07	0.08	0.06	0.06
10	0.04	0.08	0.06	0.05	0.04
15	0.06	0.04	0.06	0.07	
20	0.05	0.06	0.08		
30	0.08	0.05	0.06		
40	0.05	0.06			
50	0.05				

Table 38C

DeGray
2/5/72

Chloride (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	2.9	3.0	3.0	3.8	3.2
5	3.2	3.1	2.8	3.3	3.2
10	3.4	2.8	2.9	3.1	3.4
15	3.0	2.8	3.2	2.9	
20	2.7	3.1	2.8		
30	2.6	3.2	3.0		
40	2.5	3.0			
50	2.9				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.07	0.08	0.07	0.07	0.06
5	0.06	0.07	0.06	0.05	0.05
10	0.06	0.06	0.05	0.06	0.05
15	0.06	0.06	0.06	0.05	
20	0.06	0.06	0.05		
30	0.05	0.06	0.05		
40	0.06	0.06			
50	0.06				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	3.8	3.8	8.4	4.5	4.8
5	5.5	6.6	6.7	5.8	4.1
10	5.0	4.0	5.0	2.9	4.1
15	3.4	4.0	3.4	6.6	
20	4.0	7.0	4.6		
30	4.2	7.2	6.1		
40	7.0	6.0			
50	6.2				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	4	8	10	6	1
5	1	6	9	6	2
10	6	10	10	9	4
15	2	17	12	21	
20	2	8	9		
30	9	11	12		
40	4	7			
50	4				

Table 38D

DeGray
2/5/72

Iron, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.050	0.037	0.026	0.025	0.014
5	0.078	0.032	0.032	0.023	0.013
10	0.069	0.028	0.031	0.026	0.023
15	0.086	0.044	0.025	0.027	
20	0.048	0.036	0.026		
30	0.080	0.032	0.020		
40	0.070	0.028			
50	0.040				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.130	0.013	0.027	0.048	0.025
5	0.074	0.024	0.032	0.032	0.034
10	0.074	0.015	0.014	0.054	0.032
15	0.096	0.023	0.010	0.117	
20	0.091	0.025	0.033		
30	0.083	0.029	0.034		
40	0.113	0.039			
50	0.079				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0		0.001	0.004	0.020	0.008
5	0.200	0.002	0.008	0.017	0.008
10	0.200	0.000	0.007	0.017	0.011
15	0.200	0.002	0.005	0.025	
20	0.210	0.001	0.009		
30	0.240	0.000	0.007		
40	0.300	0.002			
50	0.022				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.218	0.020	0.024	0.004	0.000
5	0.174	0.048	0.027	0.000	0.000
10	0.200	0.027	0.015	0.008	0.000
15	0.220	0.038	0.011	0.045	
20	0.174	0.037	0.025		
30	0.190	0.044	0.027		
40	0.227	0.039			
50	0.186				

Table 38E

DeGray
2/5/72

Copper, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0		0.009	0.006	0.012	0.006
5	0.015	0.009	0.008	0.011	0.007
10	0.012	0.008	0.008	0.009	0.010
15	0.013	0.009	0.006	0.006	
20	0.008	0.006	0.010		
30	0.014	0.008	0.007		
40	0.012	0.008			
50	0.009				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.022	0.012	0.020	0.018	0.017
5	0.014	0.019	0.020	0.009	0.030
10	0.018	0.012	0.011	0.019	0.014
15	0.020	0.020	0.012	0.018	
20	0.013	0.017	0.016		
30	0.016	0.016	0.018		
40	0.020	0.009			
50	0.019				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0		0.011	0.010	0.014	0.008
5	0.012	0.011	0.009	0.009	0.006
10	0.013	0.013	0.008	0.009	0.013
15	0.009	0.010	0.008	0.008	
20	0.006	0.011	0.010		
30	0.016	0.008	0.016		
40	0.008	0.015			
50	0.008				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.017	0.007	0.007	0.011	0.007
5	0.005	0.008	0.011	0.004	0.007
10	0.004	0.008	0.006	0.009	0.018
15	0.008	0.006	0.006	0.010	
20	0.009	0.006	0.006		
30	0.008	0.007	0.013		
40	0.008	0.006			
50	0.006				

Table 38F

DeGray
2/5/72

Cobalt, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.002	0.001	0.001	0.001	0.001
5	0.002	0.002	0.000	0.002	0.001
10	0.002	0.001	0.000	0.000	0.000
15	0.000	0.001	0.000	0.002	
20	0.000	0.001	0.000		
30	0.001	0.001	0.001		
40	0.000	0.001			
50	0.002				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.010	0.000	0.000	0.000
5	0.002	0.000	0.000	0.000	0.000
10	0.002	0.000	0.000	0.000	0.001
15	0.000	0.000	0.000	0.001	
20	0.000	0.000	0.000		
30	0.002	0.000	0.000		
40	0.002	0.000			
50	0.000				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.000			
50	0.000				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.000		
30	0.000	0.001	0.000		
40	0.000	0.000			
50	0.000				

Table 38G

DeGray
2/5/72

Zinc, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0		0.007	0.001	0.006	0.002
5	0.016	0.009	0.006	0.009	0.003
10	0.015	0.006	0.003	0.011	0.015
15	0.015	0.007	0.004	0.004	
20	0.010	0.003	0.006		
30	0.018	0.006	0.004		
40	0.015	0.008			
50	0.018				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.000	0.000	0.000	0.000
5	0.000	0.000	0.014	0.000	0.002
10	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.000			
50	0.000				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0		0.001	0.001	0.001	0.001
5	0.002	0.001	0.001	0.001	0.002
10	0.003	0.001	0.001	0.001	0.001
15	0.001	0.001	0.001	0.002	
20	0.002	0.000	0.001		
30	0.001	0.000	0.001		
40	0.002	0.001			
50	0.001				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.000	0.000	0.001
5	0.000	0.000	0.000	0.000	0.000
10	0.001	0.000	0.000	0.000	0.000
15	0.001	0.000	0.000	0.000	
20	0.000	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.002			
50	0.000				

Table 38H

DeGray
2/5/72

Silver, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.000			
50	0.000				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.000			
50	0.000				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 39A

DeGray
3/4/72

pH

Depth (m)	Station No. 1	7	10	12	13
0	6.5	6.9	6.7	6.8	6.9
5	6.5	6.8	6.7	6.8	6.7
10	6.5	6.9	6.7	6.7	6.7
15	6.5	6.7	6.5	6.7	
20	6.5	6.7	6.7		
30	6.3	6.5	6.5		
40	6.5	6.5			
50	6.3				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	37	34	31	29	35
5	35	33	30	30	34
10	38	33	28	29	32
15	34	32	29	27	
20	35	34	26		
30	37	30	29		
40	32	32			
50	33				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	9.6	8.8	7.9	7.5	10.4
5	10.0	8.8	7.5	8.0	8.8
10	10.0	8.6	7.4	7.9	8.0
15	10.0	8.6	7.4	7.7	
20	10.0	8.8	7.4		
30	9.6	7.9	7.0		
40	9.6	7.9			
50	9.1				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.8	1.7	1.6	1.4	1.6
5	1.8	1.7	1.5	1.4	1.5
10	1.8	1.7	1.4	1.3	1.4
15	1.8	1.7	1.4	1.4	
20	1.8	1.7	1.4		
30	1.8	1.5	1.4		
40	1.8	1.6			
50	1.8				

Table 39B

DeGray
3/4/72
Sodium (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	2.3	2.1	2.0	2.5	2.4
5	2.1	2.3	2.1	2.4	2.6
10	2.2	2.2	2.0	2.9	2.6
15	2.3	2.1	2.1	3.0	
20	2.2	2.2	2.1		
30	2.3	2.0	2.2		
40	2.1	2.1			
50	2.1				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.4	1.1	0.9	0.6	0.4
5	1.1	1.2	0.9	0.6	0.5
10	1.1	1.1	0.9	0.6	0.5
15	1.2	1.0	0.7	0.7	
20	1.1	1.0	0.7		
30	1.2	1.0	0.7		
40	1.1	1.0			
50	1.2				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	0.6	0.5	1.6	1.5	0.6
5	0.3	1.5	1.6	0.6	0.5
10	0.2	1.5	1.6	0.7	0.6
15	0.5	1.7	1.7	0.4	
20	0.3	1.9	1.8		
30	0.3	1.9	1.8		
40	0.6				
50	0.3				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.03	0.03	0.12	0.03	0.05
5	0.05	0.11	0.05	0.04	0.02
10	0.04	0.06	0.06	0.05	0.05
15	0.03	0.05	0.04	0.06	
20	0.25	0.08	0.05		
30	0.05	0.06	0.05		
40	0.03	0.20			
50	0.04				

Table 39C

DeGray
3/4/72

Chloride (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	2.4	2.1	2.6	2.7	2.3
5	2.3	2.7	2.5	2.5	2.9
10	2.5	3.1	2.4	3.4	2.5
15	3.6	1.7	2.5	2.7	
20	4.3	2.0	2.6		
30	2.6	2.4	2.8		
40	2.5	2.3			
50	2.6				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.07	0.06	0.07	0.05	0.08
5	0.06	0.07	0.05	0.04	0.05
10	0.06	0.06	0.05	0.03	0.05
15	0.06	0.06	0.06	0.03	
20	0.06	0.05	0.05		
30	0.05	0.05	0.06		
40	0.06	0.05			
50	0.05				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	4.1	3.9	4.3	3.7	4.2
5	4.4	4.2	3.5	3.7	5.0
10	3.9	4.8	3.5	3.9	4.4
15	4.5	5.0	4.3	3.4	
20	4.6	4.3	2.0		
30	4.6	4.2	3.9		
40	5.2	4.5			
50	4.5				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	2	1	6	6	0
5	2	6	4	0	4
10	1	2	4	4	2
15	0	8	0	2	
20	6	3	6		
30	5	7	0		
40	4	3			
50	6				

Table 39D

DeGray
3/4/72

Iron, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.012	0.007	0.000	0.000	0.002
5	0.000	0.004	0.000	0.000	0.000
10	0.004	0.000	0.010	0.031	0.008
15	0.08	0.005	0.019	0.027	
20	0.012	0.003	0.003		
30	0.001	0.012	0.019		
40	0.000	0.000			
50	0.012				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.035	0.007	0.026	0.040	0.045
5	0.047	0.004	0.028	0.035	0.045
10	0.025	0.000	0.031	0.037	0.072
15	0.036	0.039	0.035	0.124	
20	0.024	0.028	0.036		
30	0.024	0.029	0.043		
40	0.044	0.042			
50	0.032				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.001	0.000	0.001	0.004
5	0.001	0.001	0.000	0.001	0.004
10	0.001	0.000	0.000	0.023	0.018
15	0.001	0.000	0.000	0.043	
20	0.001	0.000	0.009		
30	0.001	0.001	0.016		
40	0.000	0.001			
50	0.004				

Mn ~~Iron~~, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.016	0.017	0.018	0.022	0.013
5	0.027	0.000	0.018	0.024	0.016
10	0.027	0.011	0.022	0.026	0.023
15	0.045	0.019	0.028	0.053	
20	0.045	0.013	0.021		
30	0.051	0.028	0.029		
40	0.100	0.048			
50	0.099				

Table 39E.

DeGray
3/4/72

Copper, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.002	0.001	0.000	0.000	0.000
5	0.000	0.001	0.000	0.000	0.000
10	0.000	0.000	0.002	0.002	0.001
15	0.000	0.001	0.002	0.002	
20	0.005	0.000	0.000		
30	0.000	0.001	0.006		
40	0.000	0.000			
50	0.002				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.015	0.017	0.017	0.019	0.016
5	0.016	0.018	0.017	0.016	0.017
10	0.015	0.016	0.017	0.018	0.014
15	0.018	0.016	0.014	0.020	
20	0.020	0.014	0.018		
30	0.018	0.017	0.018		
40	0.018	0.017			
50	0.019				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.006	0.005	0.008	0.006	0.003
5	0.004	0.004	0.005	0.007	0.006
10	0.003	0.004	0.003	0.008	0.005
15	0.005	0.007	0.003	0.006	
20	0.010	0.004	0.010		
30	0.010	0.004	0.008		
40	0.008	0.003			
50	0.008				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.006	0.007	0.002	0.004	0.008
5	0.003	0.012	0.003	0.004	0.005
10	0.004	0.007	0.004	0.005	0.005
15	0.006	0.005	0.002	0.006	
20	0.008	0.004	0.002		
30	0.007	0.005	0.010		
40	0.007	0.005			
50	0.008				

Table 39F

DeGray
3/4/72

Cobalt, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.002	0.000	0.001	0.001	0.001
5	0.001	0.001	0.002	0.001	0.002
10	0.001	0.000	0.003	0.002	0.005
15	0.002	0.001	0.004	0.003	
20	0.001	0.000	0.003		
30	0.002	0.000	0.002		
40	0.001	0.000			
50	0.000				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.000	0.000	0.000	0.000
5	0.000	0.000	0.001	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.000		
30	0.000	0.000	0.001		
40	0.000	0.000			
50	0.000				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.001	0.000	0.003	0.002
5	0.000	0.003	0.000	0.003	0.003
10	0.000	0.000	0.000	0.003	0.000
15	0.002	0.000	0.000	0.002	
20	0.002	0.002	0.002		
30	0.001	0.002	0.000		
40	0.001	0.000			
50	0.002				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.007	0.006	0.005	0.005
5	0.000	0.009	0.004	0.005	0.004
10	0.002	0.005	0.004	0.004	0.009
15	0.000	0.005	0.005	0.004	
20	0.008	0.004	0.007		
30	0.004	0.005	0.008		
40	0.000	0.006			
50	0.012				

Table 39G

DeGray
3/4/72

Zinc, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.154
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.003	0.000
15	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.000		
30	0.000	0.000	0.003		
40	0.000	0.000			
50	0.009				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.009	0.006	0.006	0.005	0.005
5	0.008	0.009	0.005	0.005	0.004
10	0.005	0.004	0.005	0.005	0.004
15	0.006	0.005	0.010	0.005	
20	0.013	0.003	0.006		
30	0.007	0.003	0.008		
40	0.009	0.004			
50	0.014				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.001	0.000	0.001	0.025
5	0.002	0.000	0.001	0.001	0.003
10	0.030	0.001	0.001	0.002	0.004
15	0.000	0.000	0.001	0.001	
20	0.001	0.001	0.001		
30	0.000	0.000	0.003		
40	0.000	0.000			
50	0.000				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.003	0.004	0.006	0.005	0.019
5	0.007	0.003	0.002	0.001	0.002
10	0.012	0.002	0.006	0.002	0.005
15	0.028	0.001	0.002	0.003	
20	0.006	0.001	0.004		
30	0.011	0.000	0.004		
40	0.002	0.001			
50	0.004				

Table 39H

DeGray
3/4/72

Silver, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.000			
50	0.000				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.000			
50	0.000				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 40A

DeGray
4/15/72
pH

Depth (m)	Station No. 1	7	10	12	13
0	7.2	7.4	7.0	7.4	7.2
5	7.3	7.0	6.8	6.8	7.3
10	7.1	6.8	6.8	6.8	6.9
15	6.9	6.7	6.9	6.6	
20	6.7	6.7	6.6		
30	6.8	6.7	6.7		
40	6.7	6.7			
50	6.8				

Alkalinity (ppm)

Depth (m)	1	7	10	12	13
0	34	33	34	34	39
5	34	32	33	31	33
10	35	31	30	33	35
15	35	29	29	30	
20	33	31	29		
30	35	31	28		
40	35	34			
50	34				

Calcium (ppm)

Depth (m)	1	7	10	12	13
0	8.2	8.3	8.0	9.0	11.0
5	8.4	8.3	7.9	9.5	9.1
10	9.6	7.4	8.0	8.5	9.0
15	9.4	8.2	7.4	7.8	
20	8.5	8.2	7.6		
30	8.6	8.4	8.0		
40	8.6	8.5			
50	8.8				

Magnesium (ppm)

Depth (m)	1	7	10	12	13
0	1.9	1.8	1.8	1.7	2.0
5	1.9	1.8	1.8	1.7	1.7
10	1.9	1.8	1.8	1.6	1.7
15	1.9	1.8	1.6	1.6	
20	1.9	1.8	1.6		
30	2.0	1.8	1.6		
40	2.0	2.0			
50	2.0				

Table 40B

DeGray
4/15/72

Sodium (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	2.4	2.2	2.1	2.3	2.6
5	2.1	2.2	2.1	2.2	2.4
10	2.1	2.8	2.3	2.2	2.4
15	2.2	2.0	2.2	2.1	
20	2.1	2.1	2.0		
30	2.2	2.0	2.0		
40	2.1	2.0			
50	2.2				

Potassium (ppm)

Depth (m)	1	7	10	12	13
0	1.9	1.8	1.0	1.0	1.2
5	1.4	2.1	1.3	1.1	1.1
10	1.4	2.1	1.6	1.0	1.1
15	1.8	1.6	1.3	1.0	
20	1.6	1.6	1.2		
30	1.7	1.6	1.3		
40	1.6	1.6			
50	1.7				

Nitrate (ppm)

Depth (m)	1	7	10	12	13
0	1.0	1.3	0.8	0.5	0.4
5	0.09	1.4	0.8	0.6	0.5
10	1.3	1.2	1.0	0.8	0.8
15	1.5	1.5	1.5	1.4	
20	1.5	1.5	1.7		
30	1.6	1.7	1.0		
40	1.5	1.5			
50	1.6				

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13
0	0.13	0.05	0.04	0.08	0.07
5	0.15	0.05	0.04	0.06	0.05
10	0.12	0.03	0.07	0.08	0.05
15	0.12	0.04	0.03	0.08	
20	0.06	0.04	0.07		
30	0.05	0.03	0.04		
40	0.04	0.04			
50	0.05				

Table 40C

DeGray
4/15/72

Chloride (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	3.1	3.0	2.9	3.0	3.8
5	2.7	2.8	3.0	3.0	3.3
10	3.0	2.9	2.8	3.0	3.3
15	2.8	2.8	3.0	3.1	
20	2.6	2.6	2.8		
30	2.5	2.7	2.8		
40	3.1	2.7			
50	2.6				

Flouride (ppm)

Depth (m)	1	7	10	12	13
0	0.15	0.10	0.11	0.12	0.12
5	0.25	0.11	0.09	0.10	0.09
10	0.10	0.15	0.08	0.06	0.12
15	0.11	0.12	0.10	0.09	
20	0.11	0.09	0.07		
30	0.14	0.12	0.11		
40	0.11	0.08			
50	0.15				

Sulfate (ppm)

Depth (m)	1	7	10	12	13
0	2.2	<2.0	<2.0	<2.0	3.4
5	4.6	<2.0	2.2	<2.0	<2.0
10	3.1	<2.0	<2.0	3.5	3.9
15	6.0	<2.0	<2.0	<2.0	
20	7.8	<2.0	<2.0		
30	6.0	<2.0	<2.0		
40	6.9	<2.0			
50	6.7				

C.O.D. (ppm)

Depth (m)	1	7	10	12	13
0	3	0	6	2	1
5	3	5	12	5	2
10	1	1	1	5	3
15	3	6	7	3	
20	1	3	4		
30	3	3	1		
40	3	7			
50	2				

Table 40D

DeGray
4/15/72

Iron, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.021	0.008	0.009	0.012	0.022
5	0.008	0.028	0.010	0.007	0.007
10	0.008	0.012	0.010	0.046	0.080
15	0.030	0.009	0.037	0.134	
20	0.019	0.012	0.027		
30	0.012	0.011	0.049		
40	0.032	0.089			
50	0.089				

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.035	0.012	0.012	0.004	0.027
5	0.015	0.012	0.016	0.008	0.014
10	0.014	0.012	0.022	0.045	0.044
15	0.023	0.020	0.044	0.089	
20	0.025	0.020	0.040		
30	0.022	0.018	0.038		
40	0.024				
50	0.028				

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.001
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.115	0.324
15	0.000	0.000	0.018	0.800	
20	0.001	0.000	0.065		
30	0.000	0.012	0.147		
40	0.000	1.02			
50	0.001				

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.013	0.015	0.016	0.022	0.029
5	0.016	0.014	0.023	0.030	0.048
10	0.022	0.024	0.039	0.100	0.105
15	0.030	0.027	0.094	0.068	
20	0.042	0.046	0.056		
30	0.065	0.066	0.107		
40	0.096	0.078			
50	0.169				

Table 40E

DeGray
4/15/72

Copper, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.006	0.002	0.002	0.002	0.007
5	0.002	0.001	0.002	0.002	0.002
10	0.002	0.001	0.004	0.004	0.004
15	0.002	0.002	0.005	0.005	
20	0.002	0.002			
30	0.001	0.002			
40	0.001	0.005			
50	0.003				

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.025	0.016	0.020	0.016	0.017
5	0.015	0.016	0.022	0.015	0.016
10	0.015	0.019	0.017	0.019	0.015
15	0.016	0.018	0.019	0.019	
20	0.016	0.016	0.019		
30	0.015	0.017	0.016		
40	0.018	0.017			
50	0.020				

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.009	0.007	0.010	0.007	0.008
5	0.004	0.005	0.008	0.007	0.009
10	0.008	0.010	0.005	0.012	0.006
15	0.013	0.006	0.010	0.011	
20	0.010	0.006	0.005		
30	0.012	0.006	0.007		
40	0.007	0.013			
50	0.012				

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.012	0.009	0.004	0.000	0.006
5	0.003	0.006	0.002	0.002	0.003
10	0.003	0.006	0.006	0.003	0.009
15	0.016	0.004	0.008	0.004	
20	0.004	0.006	0.007		
30	0.003	0.003	0.002		
40	0.004	0.005			
50	0.005				

Table 40F

DeGray
4/15/72

Cobalt, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.004	0.000	0.000	0.000	0.005
5	0.000	0.001	0.003	0.002	0.002
10	0.002	0.000	0.001	0.000	0.001
15	0.002	0.002	0.000	0.003	
20	0.000	0.004	0.002		
30	0.000	0.000	0.003		
40	0.000	0.002			
50	0.001				

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.002	0.003	0.000	0.000
5	0.002	0.002	0.000	0.000	0.000
10	0.004	0.000	0.001	0.000	0.001
15	0.004	0.003	0.000	0.000	
20	0.004	0.000	0.004		
30	0.002	0.000	0.000		
40	0.004	0.003			
50	0.002				

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.000	0.000	0.000	0.000
5	0.001	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.002
15	0.000	0.000	0.000	0.001	
20	0.001	0.000	0.000		
30	0.001	0.000	0.000		
40	0.000	0.000			
50	0.000				

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.004	0.000	0.000	0.000	0.000
5	0.000	0.002	0.002	0.000	0.000
10	0.000	0.000	0.002	0.014	0.000
15	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.002		
30	0.000	0.000	0.000		
40	0.001	0.000			
50	0.000				

Table 40G

DeGray
4/15/72

Zinc, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.017	0.002	0.000	0.012	0.004
5	0.000	0.000	0.000	0.001	0.000
10	0.003	0.000	0.002	0.002	0.002
15	0.000	0.001	0.002	0.003	
20	0.001	0.001	0.001		
30	0.000	0.001	0.002		
40	0.001	0.001			
50	0.002				

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.029	0.011	0.023	0.022	0.010
5	0.002	0.002	0.024	0.024	0.021
10	0.000	0.001	0.011	0.022	0.012
15	0.004	0.011	0.000	0.073	
20	0.004	0.000	0.000		
30	0.005	0.023	0.050		
40	0.009	0.026			
50	0.015				

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13
0	0.002	0.000	0.000	0.000	0.000
5	0.000	0.001	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	
20	0.001	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.000			
50	0.001				

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.006	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.000			
50	0.000				

Table 40H

DeGray
4/15/72
Silver, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13
0	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.001	0.000	
20	0.000	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.000			
50	0.000				

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13
0	0.001	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.001
10	0.000	0.000	0.002	0.000	0.000
15	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.000		
30	0.000	0.000	0.000		
40	0.000	0.000			
50	0.000				

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 41A

DeGray
5/15/72

pH

Depth (m)	Station No. 1	7	10	12	13	14
0	6.9	6.9	6.9	6.9	6.9	6.9
5	6.9	6.8	6.9	6.9	6.7	6.7
10	6.7	6.7	6.9	6.8	6.5	
15	6.7	6.7	6.7	6.7		
20	6.4	6.7	6.7			
30	6.4	6.7	6.7			
40	6.3	6.7				
50	6.5					

Alkalinity (ppm)

Depth (m)	1	7	10	12	13	14
0	33	32	31	32	30	32
5	32	31	30	30	29	31
10	33	30	28	30	10	
15	33	28	29	30		
20	33	31	28			
30	31	31	29			
40	32					
50	34					

Calcium (ppm)

Depth (m)	1	7	10	12	13	14
0	8.6	8.9	8.9	9.2	9.1	10.2
5	8.6	8.8	9.1	8.6	9.1	9.9
10	8.7	8.6	8.3	9.1	7.6	
15	9.0	8.5	8.3	8.9		
20	9.0	8.8	8.7			
30	9.2	8.9	8.5			
40	8.8	9.4				
50	9.3					

Magnesium (ppm)

Depth (m)	1	7	10	12	13	14
0	1.6	8.9	8.9	9.2	9.1	1.5
5	1.6	8.8	9.1	8.6	9.1	1.5
10	1.6	8.6	8.3	9.1	7.6	
15	1.6	8.5	8.3	8.9		
20	1.8	8.8	8.7			
30	1.8	8.9	8.5			
40	1.7	9.4				
50	1.8					

Table 41B

DeGray
5/15/72

Sodium (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	2.4	2.3	2.1	2.2	2.1	2.5
5	2.2	2.1	2.1	2.3	2.1	2.2
10	2.2	2.0	2.0	2.1	1.8	
15	2.1	2.1	2.0	2.2		
20	2.2	2.0	2.1			
30	2.1	2.1	2.1			
40	2.2	2.0				
50	2.2					

Potassium (ppm)

Depth (m)	1	7	10	12	13	14
0	1.8	1.7	1.3	1.3	1.2	1.2
5	1.5	1.5	1.3	1.3	1.2	1.1
10	1.5	1.5	1.4	1.2	1.3	
15	1.5	1.4	1.4	1.3		
20	1.7	1.5	1.4			
30	1.7	1.5	1.5			
40	1.6	1.5				
50	1.7					

Nitrate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.3	0.3	0.3	0.3	0.5	0.3
5	0.0	0.1	0.3	0.3	0.5	0.9
10	0.2	0.4	0.2	0.1		
15	0.2	0.6	0.7	0.3		
20	0.5	0.8	0.6			
30	0.5	0.4	0.4			
40	0.4	0.6				
50	0.6					

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13	14
0	0.10	0.03	0.08	0.05	0.03	0.36
5	0.11	0.06	0.07	0.05	0.05	0.04
10	0.03	0.06	0.06	0.04	0.07	
15	0.05	0.07	0.03	0.16		
20	0.04	0.09	0.05			
30	0.10	0.06	0.02			
40	0.06	0.05				
50	0.03					

Table 41C

DeGray
5/15/72

Chloride (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	3.7	3.9	3.8	3.7	3.7	3.3
5	3.5	3.5	3.4	3.5	3.2	3.3
10	3.0	3.2	3.0	3.7	2.5	
15	3.1	3.4	3.6	3.5		
20	3.3	3.4	3.3			
30	3.3	3.3	3.4			
40	3.5	3.4				
50	3.2					

Flouride (ppm)

Depth (m)	1	7	10	12	13	14
0	0.11	0.09	0.08	0.07	0.08	0.09
5	0.13	0.08	0.07	0.06	0.04	0.05
10	0.11	0.06	0.05	0.06	0.03	
15	0.08	0.05	0.04	0.03		
20	0.08	0.05	0.04			
30	0.06	0.05	0.04			
40	0.06					
50	0.05					

Sulfate (ppm)

Depth (m)	1	7	10	12	13	14
0	5.9	6.7	5.2	7.3	6.4	4.2
5	6.0	5.9	7.1	5.3	5.2	5.0
10	4.6	7.2	5.6	5.9	4.6	
15	6.7	6.5	4.4	6.9		
20	8.4	5.9	5.2			
30	6.8	6.9	5.2			
40	7.6	7.0				
50	7.6					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13	14
0	4	9	39	30	32	26
5	1	34	31	29	23	29
10	12	39	40	31	31	
15	11	31	41	34		
20	10	42	35			
30	11	38	27			
40	15	42				
50	6					

Table 41D

DeGray
5/15/72

Iron, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	0.010	0.010	0.007	0.011	0.017	0.053
5	0.008	0.009	0.008	0.011	0.067	0.029
10	0.005	0.005	0.011	0.016	0.079	
15	0.012	0.009	0.024	1.14		
20	0.009	0.013				
30	0.011	0.019	0.046			
40	0.019	0.176				
50	0.012					

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.017	0.013	0.016	0.020	0.025	0.041
5	0.011	0.016	0.008	0.036	0.022	0.060
10	0.017	0.019	0.024	0.025	0.052	
15	0.009	0.020	0.016	0.039		
20	0.015	0.020	0.006			
30	0.020	0.037	0.052			
40	0.020	0.214				
50	0.016					

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13	14
0	0.014	0.000	0.000	0.008	0.000	0.158
5	0.005	0.000	0.000	0.000	0.083	0.012
10	0.000	0.000	0.010	0.018	0.250	
15	0.000	0.000	0.108	1.90		
20	0.000	0.000	0.100			
30	0.000	0.000	0.158			
40	0.001	0.000				
50	0.056					

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.007	0.010	0.013	0.028	0.045	0.070
5	0.010	0.020	0.016	0.045	0.045	0.106
10	0.018	0.024	0.034	0.028	0.098	
15	0.038	0.028	0.055	0.010		
20	0.046	0.055	0.037			
30	0.120	0.080	0.125			
40	0.115	0.075				
50	0.180					

Table 41E

DeGray
5/15/72

Copper, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	0.003	0.002	0.001	0.001	0.002	0.004
5	0.009	0.003	0.002	0.001	0.003	0.003
10	0.000	0.001	0.001	0.000	0.004	
15	0.002	0.000	0.003	0.005		
20	0.001	0.001	0.001			
30	0.002	0.001	0.003			
40	0.003	0.004				
50	0.002					

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.010	0.017	0.013	0.019	0.018	0.017
5	0.014	0.022	0.013	0.018	0.017	0.017
10	0.020	0.016	0.018	0.014	0.017	
15	0.016	0.016	0.017	0.018		
20	0.020	0.018	0.001			
30	0.024	0.010	0.017			
40	0.025	0.013				
50	0.020					

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13	14
0	0.006	0.000	0.006	0.006	0.005	0.003
5	0.005	0.003	0.000	0.000	0.003	0.004
10	0.000	0.001	0.001	0.001	0.005	
15	0.004	0.000	0.002	0.002		
20	0.002	0.005	0.000	0.000		
30	0.001	0.000	0.004	0.004		
40	0.000	0.003				
50	0.003					

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.000	0.012	0.009	0.009	0.010	0.009
5	0.000	0.007	0.006	0.075	0.009	0.008
10	0.008	0.011	0.010	0.010	0.009	
15	0.010	0.007	0.005	0.005		
20	0.008	0.007	0.001	0.001		
30	0.001	0.007	0.008	0.008		
40	0.001	0.009				
50	0.008					

Table 41F

DeGray
5/15/72

Cobalt, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	0.003	0.003	0.002	0.001	0.001	0.001
5	0.002	0.001	0.002	0.001	0.000	0.001
10	0.001	0.002	0.001	0.001	0.001	
15	0.001	0.003	0.002	0.003		
20	0.001	0.002	0.002			
30	0.001	0.002	0.001			
40	0.002	0.002				
50	0.002					

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.000	0.002	0.000	0.003	0.002	0.000
5	0.000	0.001	0.002	0.010	0.000	0.000
10	0.000	0.001	0.002	0.002	0.004	
15	0.003	0.002	0.000	0.002		
20	0.003	0.001	0.003			
30	0.003	0.001	0.000			
40	0.004	0.003				
50	0.003					

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13	14
0	0.000	0.001	0.005	0.002	0.002	0.002
5	0.002	0.000	0.004	0.002	0.003	0.002
10	0.000	0.002	0.003	0.001	0.004	
15	0.000	0.003	0.003	0.007		
20	0.000	0.003	0.002			
30	0.001	0.005	0.004			
40	0.000	0.004				
50	0.001					

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.001	0.001	0.005	0.007	0.060	0.000
5	0.000	0.002	0.000	0.018	0.002	0.000
10	0.012	0.000	0.000	0.000	0.001	
15	0.000	0.002	0.000	0.007		
20	0.000	0.002	0.000			
30	0.000	0.002	0.002			
40	0.000	0.005				
50	0.000					

Table 41G

DeGray
5/15/72

Zinc, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	0.013	0.007	0.001	0.001	0.006	0.006
5	0.004	0.005	0.001	0.002	0.006	0.001
10	0.000	0.023	0.001	0.001	0.007	
15	0.005	0.003	0.004	0.007		
20	0.005	0.008	0.002			
30	0.001	0.006	0.009			
40	0.005	0.016				
50	0.008					

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.024	0.025	0.000	0.006	0.012	0.002
5	0.015	0.017	0.001	0.015	0.001	0.000
10	0.003	0.011	0.003	0.007	0.001	
15	0.002	0.014	0.008	0.010		
20	0.006	0.015	0.000			
30	0.011	0.000	0.008			
40	0.006	0.001				
50	0.028					

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13	14
0	0.001	0.000	0.000	0.000	0.000	0.001
5	0.001	0.000	0.000	0.001	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000	0.001		
20	0.000	0.000	0.000			
30	0.000	0.000	0.000			
40	0.000	0.000				
50	0.000					

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.002	0.000	0.000
10	0.000	0.000	0.001	0.000	0.002	
15	0.000	0.000	0.000	0.000		
20	0.000	0.000	0.000			
30	0.000	0.000	0.000			
40	0.000	0.000				
50	0.000					

Table 41H

DeGray
5/15/72

Silver, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000	0.000		
20	0.000	0.000	0.000			
30	0.000	0.000	0.000			
40	0.000	0.000				
50	0.000					

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000	0.000	0.000	
20	0.000	0.000	0.000			
30	0.000	0.000	0.000			
40	0.000	0.000				
50	0.000					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 42A

DeGray
5/29/72
pH

Depth (m)	Station No. 1	7	10	12	13	14
0	7.6	7.6	7.6	7.5	7.4	7.3
5	7.5	7.5	7.3	7.1	6.9	6.9
10	6.9	6.9	6.7	6.7	6.9	
15	6.9	6.9	6.7	6.9		
20	6.9	6.9	6.7			
30	6.7	6.9	6.7			
40	6.7	6.7				
50	6.6					

Alkalinity (ppm)

Depth (m)	1	7	10	12	13	14
0	33	33	36	38	38	51
5	34	34	35	35	39	47
10	34	33	31	34		
15	34	32	43	36		
20	36	34	35			
30	37	37	35			
40	34	41				
50	9					

Calcium (ppm)

Depth (m)	1	7	10	12	13	14
0	7.5	8.4	8.7	8.9	10.2	13.5
5	8.8	8.4	8.4	8.5	9.7	12.0
10	8.2	8.0	7.5	7.3	9.2	
15	8.5	8.1	8.1	9.2		
20	8.7	8.1	8.1			
30	8.7	8.5	8.5			
40	8.9	10.5				
50	8.7					

Magnesium (ppm)

Depth (m)	1	7	10	12	13	14
0	1.6	1.7	1.6	1.6	1.6	1.8
5	1.6	1.6	1.6	1.6	1.6	1.8
10	1.7	1.5	1.4	1.3	1.7	
15	1.8	1.6	1.5	1.6		
20	1.7	1.6	1.6			
30	1.9	1.7	1.7			
40	1.8	2.0				
50	1.8					

Table 42B

DeGray
5/29/72

Sodium (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	2.3	2.2	2.3	2.2	2.3	2.3
5	2.2	2.2	2.1	2.1	2.3	2.3
10	2.1	2.1	1.9	1.8	2.0	
15	2.3	2.1	2.1	2.2		
20	2.8	2.0	2.2			
30	2.3	2.3	2.0			
40	2.2	2.1				
50	2.2					

Potassium (ppm)

Depth (m)	1	7	10	12	13	14
0	1.5	1.3	1.4	1.2	1.1	0.9
5	1.5	1.3	1.3	1.2	1.1	0.9
10	1.6	1.3	1.3	1.1	1.2	
15	1.6	1.4	1.2	1.3		
20	1.5	1.4	1.4			
30	1.5	1.6	1.5			
40	1.4	1.6				
50	1.5					

Nitrate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.2	0.6	0.0	0.0	0.0	0.2
5	1.0	0.0	0.0	0.0	0.4	0.0
10	1.9	0.2	0.5	0.0	0.2	
15	2.0	0.4	0.4	0.5		
20	1.7	0.0	0.3			
30	0.7	0.2	1.1			
40	0.5	0.4				
50	0.9					

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13	14
0	0.27	0.07	0.04	0.07	0.07	0.07
5	0.27	0.03	0.04	0.05	0.08	0.06
10	0.11	0.06	0.06	0.08	0.11	
15	0.03	0.07	0.08	0.20		
20	0.06	0.05	0.03			
30	0.05	0.17	0.06			
40	0.09	0.11				
50	0.15					

Table 42C

DeGray
5/29/72
Chloride (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	3.1	3.5	3.4	3.0	2.5	3.2
5	3.0	3.2	3.2	2.9	2.8	2.4
10	2.9	2.7	2.5	2.3	2.5	
15	3.0	2.7	2.9	2.8		
20	3.1	2.6	2.7			
30	2.7	2.9	3.0			
40	2.8	2.8				
50	2.7					

Flouride (ppm)

Depth (m)	1	7	10	12	13	14
0	0.04	0.04	0.04	0.06	0.06	0.05
5	0.03	0.03	0.04	0.03	0.03	0.06
10	0.03	0.03	0.02	0.02	0.02	
15	0.05	0.02	0.03			
20	0.04	0.02	0.03			
30	0.03	0.02	0.03			
40	0.03	0.06				
50	0.03					

Sulfate (ppm)

Depth (m)	1	7	10	12	13	14
0	3.9	5.6	7.6	8.0	6.6	7.6
5	4.7	6.1	9.1	8.6	8.6	8.9
10	6.0	5.5	4.1	6.5	7.4	
15	4.1	6.3	8.8	9.9		
20	6.4	8.5	7.8			
30	4.9	8.1	7.1			
40	6.2	9.7				
50	3.3					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13	14
0	26	27	48	53	49	43
5	28	35	42	55	53	33
10	32	40	42	48	46	
15	31	34	40	51		
20	28	36	47			
30	28	47	45			
40	27	47				
50	16					

Table 42D

DeGray
5/29/72

Iron, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	0.007	0.017	0.013	0.022	0.040	0.035
5	0.007	0.017	0.018	0.019	0.040	0.046
10	0.002	0.014	0.018	0.142	0.040	
15	0.019	0.009	0.032	2.55		
20	0.003	0.007	0.022			
30	0.009	0.030	0.222			
40	0.020	3.000				
50	0.010					

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.035	0.016	0.022	0.026	0.040	0.035
5	0.042	0.020	0.014	0.017	0.040	0.046
10	0.030	0.012	0.036	0.072	0.040	
15	0.042	0.016	0.039	0.047		
20	0.033	0.014	0.049			
30	0.036	0.058	0.076			
40	0.042	0.350				
50	0.048					

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13	14
0	0.000	0.000	0.003	0.000	0.000	0.014
5	0.000	0.000	0.022	0.014	0.030	2.10
10	0.007	0.001	0.038	0.800	2.40	
15	0.009	0.002	0.048	2.20		
20	0.000	0.003	0.156			
30	0.001	0.110	0.022			
40	0.027	3.70				
50	0.040					

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.012	0.017	0.024	0.022	0.031	0.053
5	0.021	0.013	0.018	0.018	0.052	0.015
10	0.031	0.018	0.036	0.012	0.011	
15	0.055	0.038	0.011	0.011		
20	0.075	0.048	0.016			
30	0.132	0.156	0.014			
40	0.202	0.022				
50	0.224					

Table 42E

DeGray
5/29/72

Copper, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	0.000	0.000	0.000	0.005	0.000	0.006
5	0.000	0.007	0.000	0.003	0.003	0.014
10	0.001	0.006	0.007	0.012	0.018	
15	0.010	0.002	0.012	0.011		
20	0.000	0.000	0.006			
30	0.002	0.002	0.012			
40	0.009	0.015				
50	0.007					

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.023	0.015	0.013	0.015	0.022	0.023
5	0.022	0.019	0.013	0.018	0.022	0.021
10	0.019	0.017	0.020	0.021	0.022	
15	0.020	0.020	0.016	0.016		
20	0.020	0.020	0.016			
30	0.014	0.019	0.018			
40	0.020	0.014				
50	0.022					

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13	14
0	0.004	0.000	0.001	0.010	0.008	0.000
5	0.004	0.001	0.000	0.006	0.000	0.000
10	0.002	0.000	0.014	0.005	0.000	
15	0.010	0.004	0.004	0.019		
20	0.000	0.004	0.006			
30	0.001	0.000	0.009			
40	0.016	0.002				
50	0.000					

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.000	0.006	0.009	0.000	0.005	0.003
5	0.006	0.005	0.000	0.000	0.000	0.019
10	0.010	0.004	0.005	0.002	0.006	
15	0.016	0.006	0.004	0.000		
20	0.004	0.006	0.004			
30	0.004	0.013	0.003			
40	0.010	0.005				
50	0.012					

Table 42F

DeGray
5/29/72

Cobalt, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	0.002	0.002	0.002	0.002	0.000	0.001
5	0.002	0.000	0.002	0.000	0.000	0.003
10	0.000	0.000	0.000	0.008	0.002	
15	0.000	0.002	0.000	0.004		
20	0.006	0.002	0.000			
30	0.005	0.001	0.001			
40	0.002	0.008				
50	0.000					

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.001	0.002	0.001	0.000	0.003	0.000
5	0.000	0.005	0.001	0.000	0.000	0.000
10	0.002	0.001	0.000	0.000	0.000	
15	0.002	0.002	0.002	0.000		
20	0.006	0.001	0.000			
30	0.006	0.000	0.000			
40	0.003	0.000				
50	0.004					

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13	14
0	0.002	0.000	0.002	0.002	0.002	0.001
5	0.003	0.004	0.004	0.000	0.000	0.006
10	0.003	0.002	0.004	0.003	0.000	
15	0.002	0.005	0.004	0.000		
20	0.004	0.002	0.003			
30	0.003	0.000	0.005			
40	0.008	0.005				
50	0.003					

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.000	0.011	0.028	0.048	0.006	0.000
5	0.000	0.048	0.010	0.007	0.017	0.022
10	0.027	0.006	0.014	0.012	0.000	
15	0.134	0.003	0.015	0.003		
20	0.056	0.000	0.021			
30	0.003	0.037	0.003			
40	0.056	0.002				
50	0.045					

Table 42G

DeGray
5/29/72

Zinc, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	0.010	0.001	0.000	0.006	0.000	0.009
5	0.010	0.008	0.000	0.012	0.000	0.032
10	0.002	0.013	0.008	0.020	0.033	
15	0.049	0.004	0.016	0.032		
20	0.000	0.000	0.010			
30	0.011	0.018	0.022			
40	0.032	0.030				
50	0.006					

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.000	0.000	0.012	0.000	0.000	0.000
5	0.002	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	
15	0.007	0.008	0.000	0.000		
20	0.000	0.000	0.000			
30	0.000	0.000	0.000			
40	0.005	0.000				
50	0.011					

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13	14
0	0.001	0.000	0.001	0.000	0.001	0.000
5	0.000	0.000	0.000	0.000	0.001	0.001
10	0.000	0.001	0.001	0.000	0.001	
15	0.002	0.000	0.001	0.001		
20	0.001	0.001	0.001			
30	0.001	0.000	0.000			
40	0.002	0.001				
50	0.000					

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.000	0.002	0.002	0.002	0.001	0.002
5	0.001	0.002	0.001	0.001	0.001	0.001
10	0.002	0.001	0.001	0.001	0.001	
15	0.002	0.002	0.002	0.001		
20	0.001	0.002	0.001			
30	0.002	0.002	0.001			
40	0.002	0.000				
50	0.007					

Table 42H

DeGray
5/29/72

Silver, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000
10	0.001	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000	0.000		
20	0.000	0.000	0.000			
30	0.002	0.000	0.000			
40	0.000	0.000				
50	0.000					

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.009	0.000	0.000	0.000	0.000	0.010
5	0.012	0.000	0.000	0.000	0.000	0.000
10	0.001	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000	0.000		
20	0.000	0.000	0.000			
30	0.002	0.000	0.000			
40	0.000	0.000				
50	0.000					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Depth (m)	1	7	10	12	13
0					
5					
10					
15					
20					
30					
40					
50					

Table 43H

DeGray
6/13/72

Silver, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000	0.000		
20	0.000	0.000	0.000			
30	0.001	0.000	0.000			
40	0.000	0.000				
50	0.000					

Silver, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0		0.008	0.010	0.006	0.005	0.003
5	0.020	0.004	0.012	0.010	0.003	0.007
10	0.012	0.005	0.004	0.008	0.006	
15	0.013	0.004	0.003	0.004		
20	0.028	0.027	0.002			
30	0.006	0.028	0.006			
40	0.006	0.015				
50	0.008					

Depth (m)	1	7	10	12	13	14
0						
5						
10						
15						
20						
30						
40						
50						

Depth (m)	1	7	10	12	13	14
0						
5						
10						
15						
20						
30						
40						
50						

Table 43A

DeGray
6/13/72
pH

Depth (m)	Station No. 1	7	10	12	13	14
0	7.6	7.6	7.3	7.4	7.5	7.6
5	7.3	7.3	7.2	7.3	6.9	6.9
10	6.8	6.7	6.5	6.7	6.9	
15	6.7	6.7	6.7	6.7		
20	6.7	6.7	6.7			
30	6.7	7.0	6.5			
40	6.7	6.7				
50	6.7					

Alkalinity (ppm)

Depth (m)	1	7	10	12	13	14
0	34	34	32	33	39	44
5	31	31	31	32	41	48
10	32	32	29	32	37	
15	34	33	32	36		
20	34	30	35			
30	34	34	31			
40	33	40				
50	33					

Calcium (ppm)

Depth (m)	1	7	10	12	13	14
0	7.8	8.6	8.7	9.0	10.0	12.4
5	8.3	8.4	8.7	8.6	11.0	17.0
10	8.5	8.2	7.5	8.1	9.4	
15	8.5	8.1	8.5	9.0		
20	8.6	8.2	7.9			
30	8.7	8.4	8.4			
40	8.6	9.9				
50	8.9					

Magnesium (ppm)

Depth (m)	1	7	10	12	13	14
0	1.8	1.9	2.0	2.1	1.8	2.1
5	1.9	1.8	1.7	1.7	2.0	2.1
10	1.9	2.0	1.6	1.7	1.9	
15	2.0	2.0	1.7	2.0		
20	2.0	1.8	1.9			
30	2.1	2.0	1.8			
40	2.1	2.0				
50	2.0					

Table 43B

DeGray
6/13/72

Sodium (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	2.1	2.0	2.0	2.1	2.1	2.0
5	2.1	2.0	2.0	2.0	2.0	2.1
10	2.0	1.9	2.0	1.8	2.0	
15	2.0	1.9	1.9	2.0		
20	1.9	2.0	1.9			
30	2.0	1.9	1.9			
40	2.0	2.0				
50	2.0					

Potassium (ppm)

Depth (m)	1	7	10	12	13	14
0	1.5	1.6	1.5	1.6	1.5	1.3
5	1.5	1.6	1.4	1.6	1.4	1.2
10	1.6	1.4	1.6	1.5	1.4	
15	1.7	1.6	1.4	1.5		
20	1.6	1.7	1.5			
30	1.6	2.0	1.5			
40	1.7	1.9				
50	1.8	2.0				

Nitrate (ppm)

Depth (m)	1	7	10	12	13	14
0	0.3	0.7	1.1	1.8	1.4	1.5
5	0.3	0.7	0.9	1.5	1.2	1.8
10	0.5	0.5	1.0	1.9	1.5	
15	0.7	1.3	1.1	2.5		
20	0.8	2.0	1.7			
30	1.0	2.0	1.8			
40	2.2	1.1				
50	1.4					

Phosphate - ortho (ppm)

Depth (m)	1	7	10	12	13	14
0	0.08	0.08	0.09	0.06	0.09	0.07
5	0.09	0.14	0.10	0.10	0.08	0.10
10	0.09	0.08	0.09	0.13	0.19	
15	0.06	0.06	0.13	0.20		
20	0.06	0.07	0.08			
30	0.09	0.05	0.09			
40	0.09	0.11				
50	0.09					

Table 43C

DeGray
6/13/72
Chloride (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	2.8	2.3	2.8	2.6	2.8	2.6
5	2.7	2.3	2.4	2.4	2.4	2.3
10	2.8	2.5	2.2	2.2	2.3	
15	2.8	3.0	2.3	2.7		
20	2.6	2.3	2.3			
30	2.7	2.3	2.4			
40	2.1	2.6				
50	2.2					

Flouride (ppm)

Depth (m)	1	7	10	12	13	14
0	0.06	0.04	0.04	0.04	0.04	0.04
5	0.04	0.04	0.03	0.04	0.03	0.03
10	0.03	0.03	0.02	0.03	0.02	
15	0.03	0.03	0.04	0.03		
20	0.03	0.03	0.03			
30	0.03	0.03	0.03			
40	0.03	0.02				
50	0.03					

Sulfate (ppm)

Depth (m)	1	7	10	12	13	14
0	12.1	2.9	3.2	3.5	2.5	4.8
5	8.9	<2.0	2.2	2.5	3.4	2.4
10	8.0	2.8	3.4	4.0	4.8	
15	16.6	2.7	3.2	4.6		
20	3.6	2.5	3.7			
30	2.4	3.3	3.9			
40	>20.0	5.7				
50	7.6					

C.O.D. (ppm)

Depth (m)	1	7	10	12	13	14
0	64	47	40	49	48	38
5	51	47	52	52	45	44
10	16	54	53	52	43	
15	50	47	56	45		
20	47	43	51			
30	12	32	57			
40	43	44				
50	56					

Table 43D

DeGray
6/13/72

Iron, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	0.016	0.016	0.013	0.093	0.020	0.004
5	0.006	0.008	0.010	0.013	0.031	0.018
10	0.000	0.000	0.096	1.90	2.90	
15	0.000	0.000	0.384	3.35		
20	0.006	0.018	0.250			
30	0.000	0.004	0.160			
40	0.005	4.20				
50	0.004					

Iron, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0		0.030	0.009	0.014	0.013	0.025
5	0.014	0.012	0.004	0.008	0.045	0.040
10	0.005	0.010	0.009	0.023	0.022	
15	0.036	0.004	0.019	0.010		
20	0.010	0.015	0.110			
30	0.019	0.019	0.152			
40	0.019	0.104				
50	0.019					

Manganese, filtered (ppm)

Depth (m)	1	7	10	12	13	14
0	0.010	0.007	0.006	0.003	0.009	0.004
5	0.006	0.005	0.006	0.013	0.030	0.079
10	0.011	0.012	0.400	1.90	2.09	
15	0.005	0.007	1.30	2.15		
20	0.009	0.029	1.13			
30	0.005	0.118	1.20			
40	0.019	3.40				
50	0.070					

Manganese, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0		0.045	0.027	0.030	0.040	0.068
5	0.024	0.023	0.023	0.025	0.200	0.150
10	0.054	0.060	0.009	0.017	0.015	
15	0.059	0.038	0.017	0.011		
20	0.054	0.034	0.010			
30	0.140	0.112	0.018			
40	0.202	0.023				
50	0.192					

Table 43E

DeGray
6/13/72

Copper, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	0.026	0.023	0.015	0.009	0.014	0.004
5	0.026	0.007	0.012	0.010	0.016	0.024
10	0.019	0.008	0.016	0.010	0.007	
15	0.011	0.006	0.012	0.010		
20	0.023	0.022	0.015			
30	0.018	0.013	0.014			
40	0.028	0.019				
50	0.029					

Copper, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0		0.014	0.017	0.018	0.016	0.018
5	0.005	0.010	0.010	0.008	0.020	0.017
10	0.016	0.014	0.008	0.022	0.019	
15	0.019	0.012	0.017	0.012		
20	0.018	0.016	0.009			
30	0.016	0.020	0.022			
40	0.016	0.014				
50	0.015					

Lead, filtered (ppm)

Depth (m)	1	7	10	12	13	14
0						
5						
10						
15						
20						
30						
40						
50						

Lead, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0		0.013	0.006	0.002	0.001	0.003
5	0.000	0.000	0.016	0.000	0.003	0.003
10	0.015	0.003	0.010	0.006	0.008	
15	0.030	0.003	0.003	0.000		
20	0.008	0.003	0.000			
30	0.007	0.002	0.015			
40	0.000	0.003				
50	0.003					

Table 43F

DeGray
6/13/72

Cobalt, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000	0.000		
20	0.000	0.000	0.000			
30	0.000	0.000	0.000			
40	0.000	0.000				
50	0.000					

Cobalt, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0		0.005	0.003	0.003	0.005	0.003
5	0.006	0.004	0.002	0.002	0.002	0.005
10	0.007	0.000	0.002	0.002	0.002	
15	0.001	0.005	0.002	0.002		
20	0.004	0.002	0.000	0.003		
30	0.003	0.005	0.000			
40	0.005	0.002				
50	0.001					

Nickel, filtered (ppm)

Depth (m)	1	7	10	12	13	14
0	0.008	0.009	0.006	0.001	0.001	0.000
5	0.006	0.003	0.003	0.004	0.006	0.006
10	0.004	0.000	0.000	0.016	0.002	
15	0.003	0.000	0.004	0.007		
20	0.006	0.003	0.003			
30	0.003	0.003	0.007			
40	0.003	0.008				
50	0.002					

Nickel, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0		0.074	0.004	0.001	0.001	0.000
5	0.010	0.011	0.000	0.004	0.006	0.006
10	0.001	0.006	0.000	0.016	0.002	
15	0.071	0.005	0.006	0.007		
20	0.006	0.022	0.003			
30	0.008	0.004	0.007			
40	0.004	0.006				
50	0.026					

Table 43G

DeGray
6/13/72

Zinc, filtered (ppm)

Depth (m)	Station No. 1	7	10	12	13	14
0						
5						
10						
15						
20						
30						
40						
50						

Zinc, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0		0.001	0.002	0.001	0.001	0.001
5	0.044	0.000	0.000	0.000	0.002	0.002
10	0.001	0.000	0.000	0.002	0.001	
15	0.044	0.000	0.002	0.000		
20	0.000	0.000	0.000			
30	0.001	0.003	0.003			
40	0.000	0.000				
50	0.000					

Cadmium, filtered (ppm)

Depth (m)	1	7	10	12	13	14
0	0.000	0.000	0.000	0.000	0.000	0.001
5	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.005	0.001	
15	0.000	0.000	0.002	0.001		
20	0.000	0.000	0.001			
30	0.000	0.000	0.001			
40	0.000	0.003				
50	0.000					

Cadmium, particulate (ppm)

Depth (m)	1	7	10	12	13	14
0		0.001	0.001	0.002	0.005	0.003
5	0.000	0.000	0.002	0.006	0.001	0.002
10	0.002	0.021	0.002	0.001	0.001	
15	0.003	0.001	0.001	0.001		
20	0.001	0.001	0.001			
30	0.001	0.002	0.002			
40	0.001					
50	0.001					

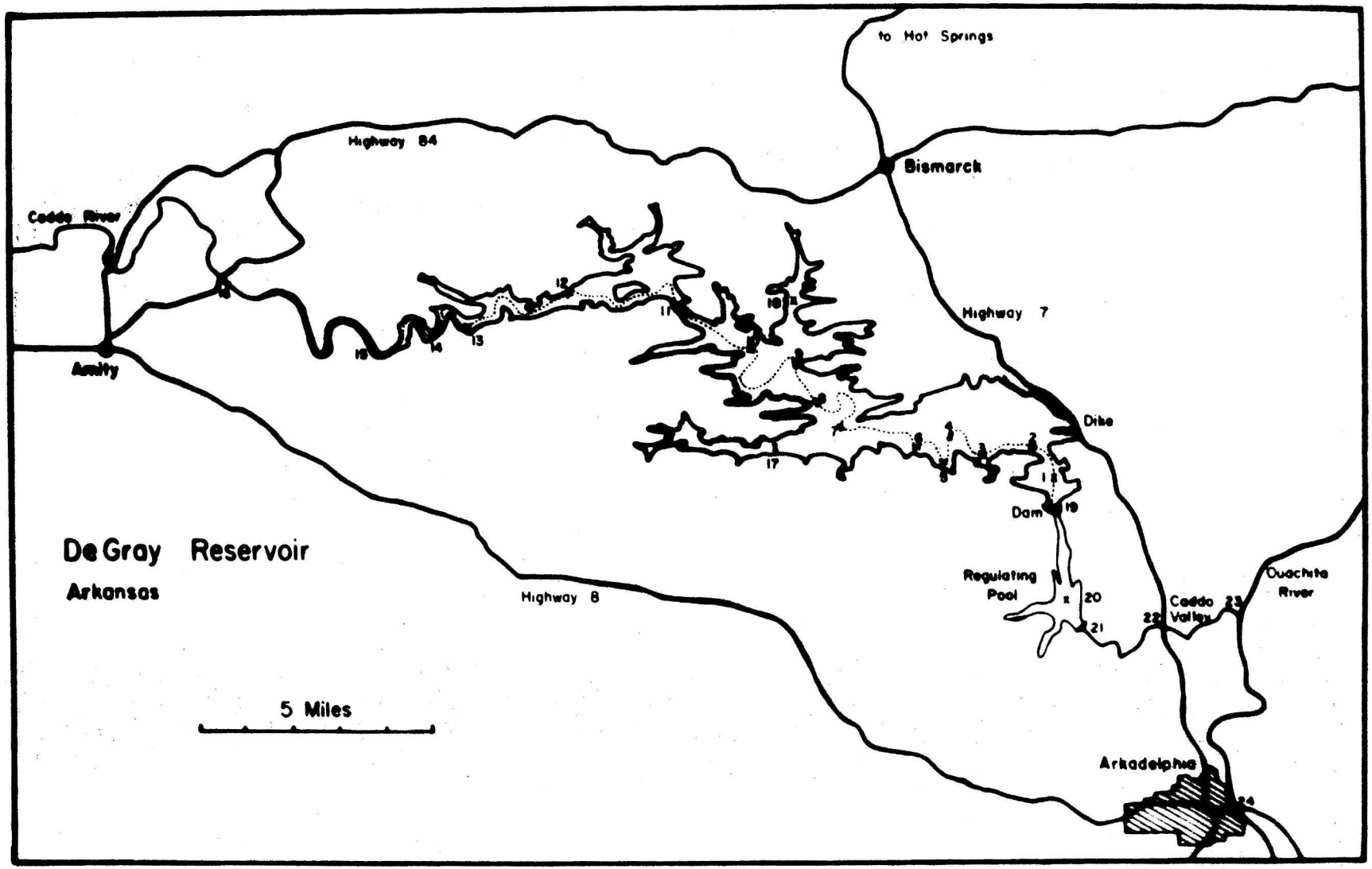
to Hot Springs
Highway 84
Bismarck
Caddo River
Highway 7
Amity
Dike
Dam
De Gray Reservoir
Arkansas
Regulating Pool
Highway 8
Caddo Valley
Ouachita River
5 Miles
Arkadelphia

Figure 1

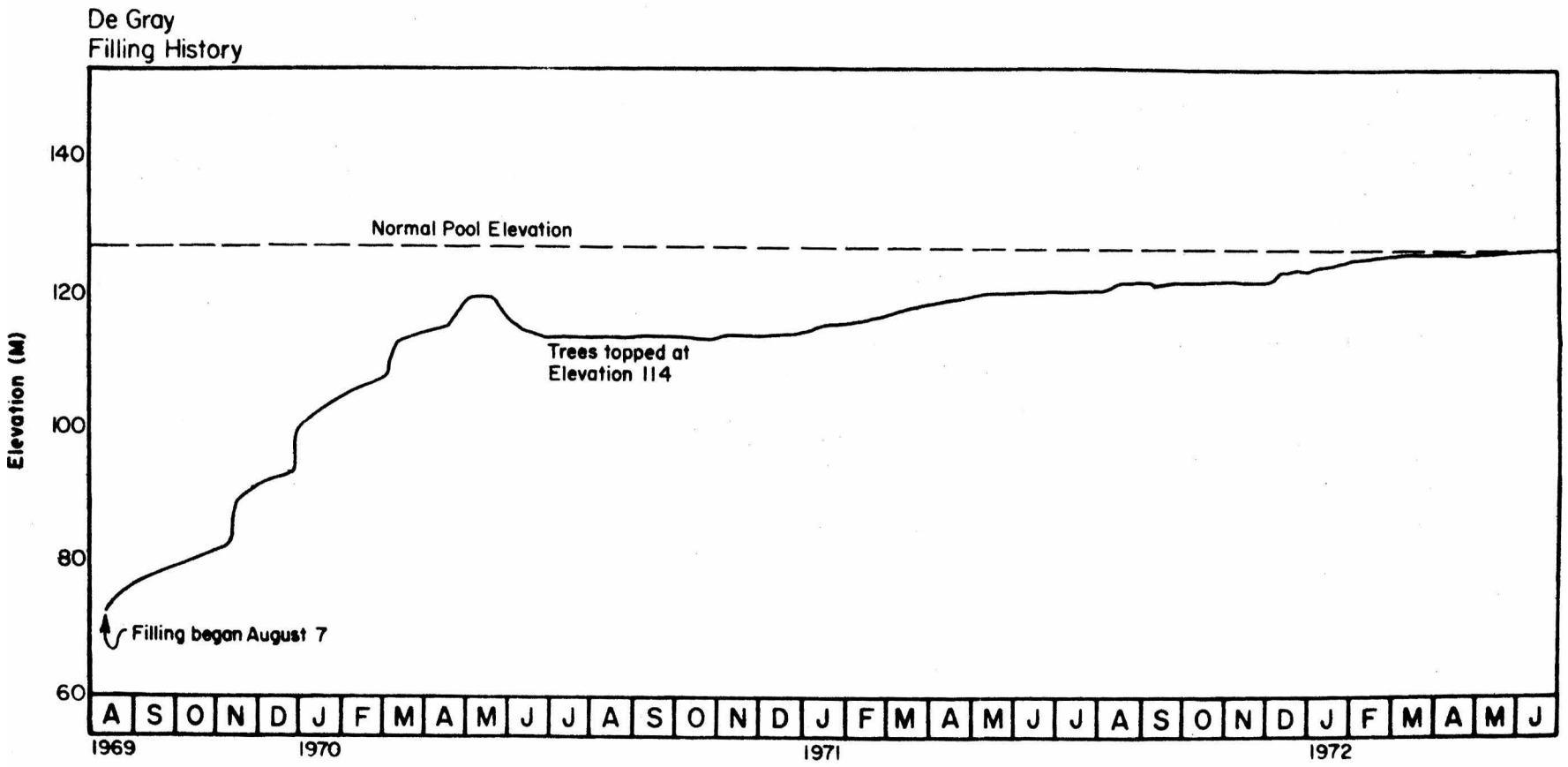
De Gray
Filling History
Elevation (M)
140
120
100
80
60
Normal Pool Elevation
Trees topped at
Elevation 114
Filling began August 7
A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J
1969
1970
1971
1972

Figure 2

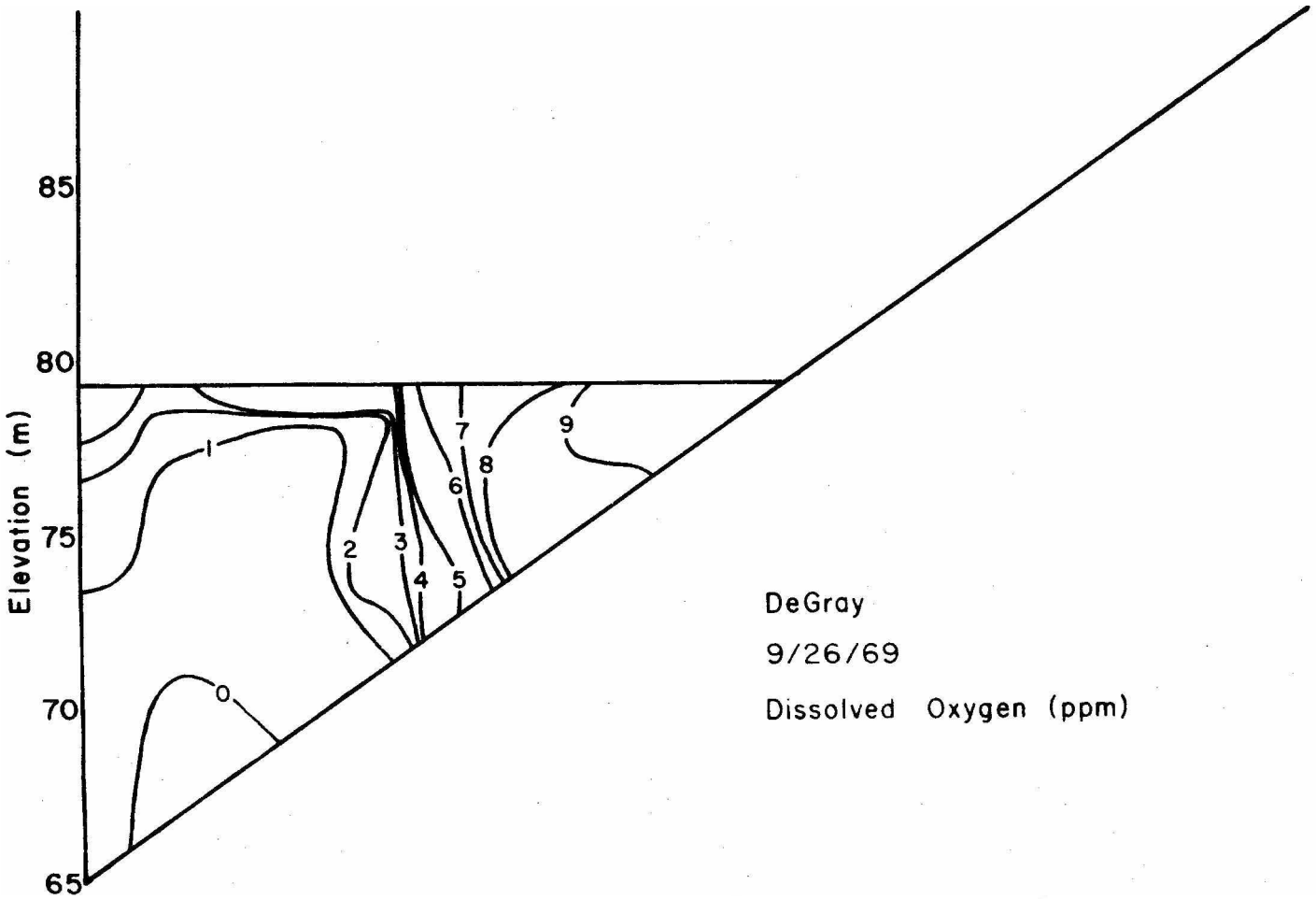
85
80
75
70
65
Elevation (m)
0
1
2
3
4
5
6
7
8
9
DeGray
9/26/69
Dissolved Oxygen (ppm)

Figure 3

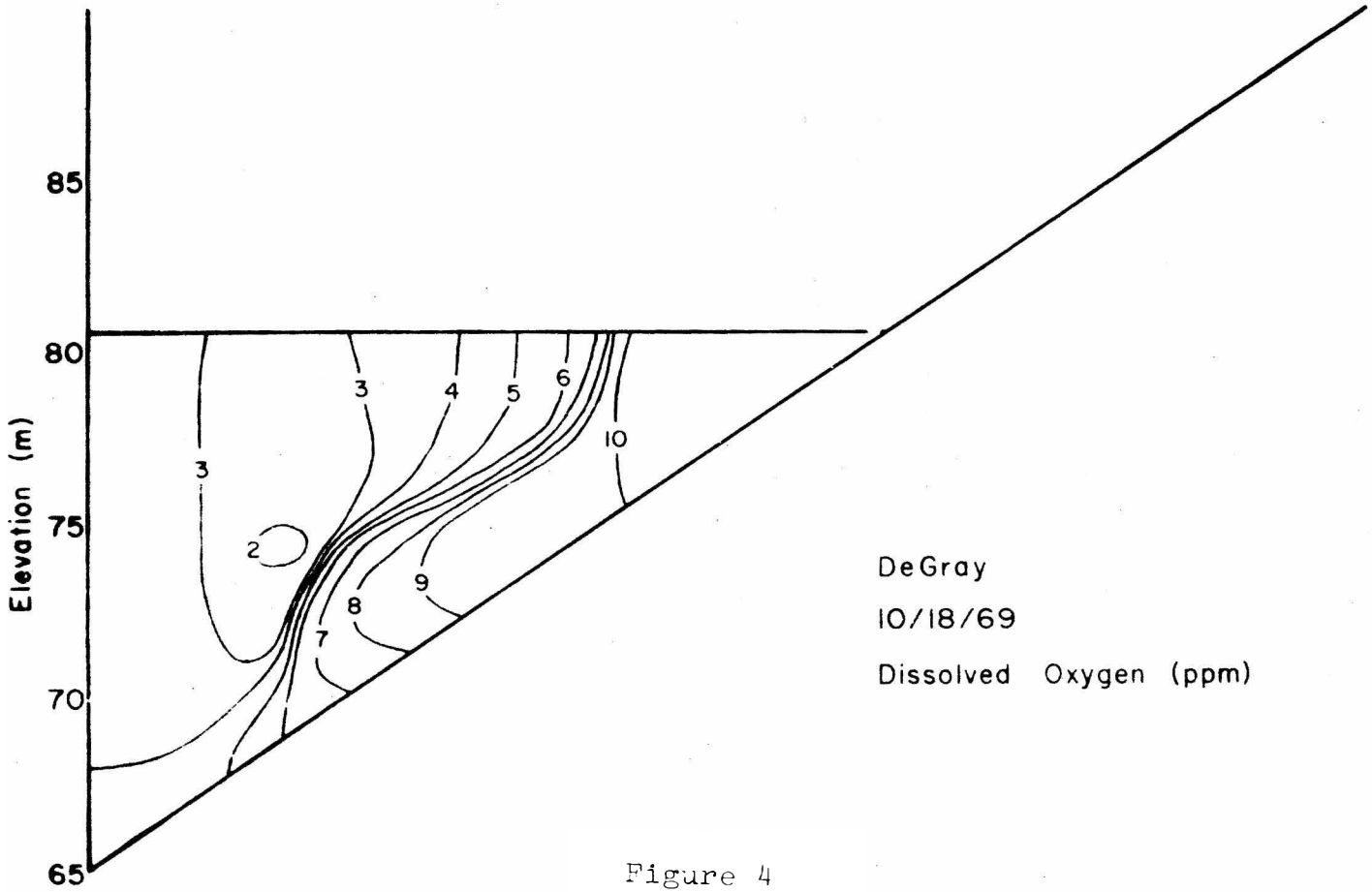
85
80
75
70
65
Elevation (m)
3
3
4
5
6
10
2
9
8
7
DeGray
10/18/69
Dissolved Oxygen (ppm)

Figure 4

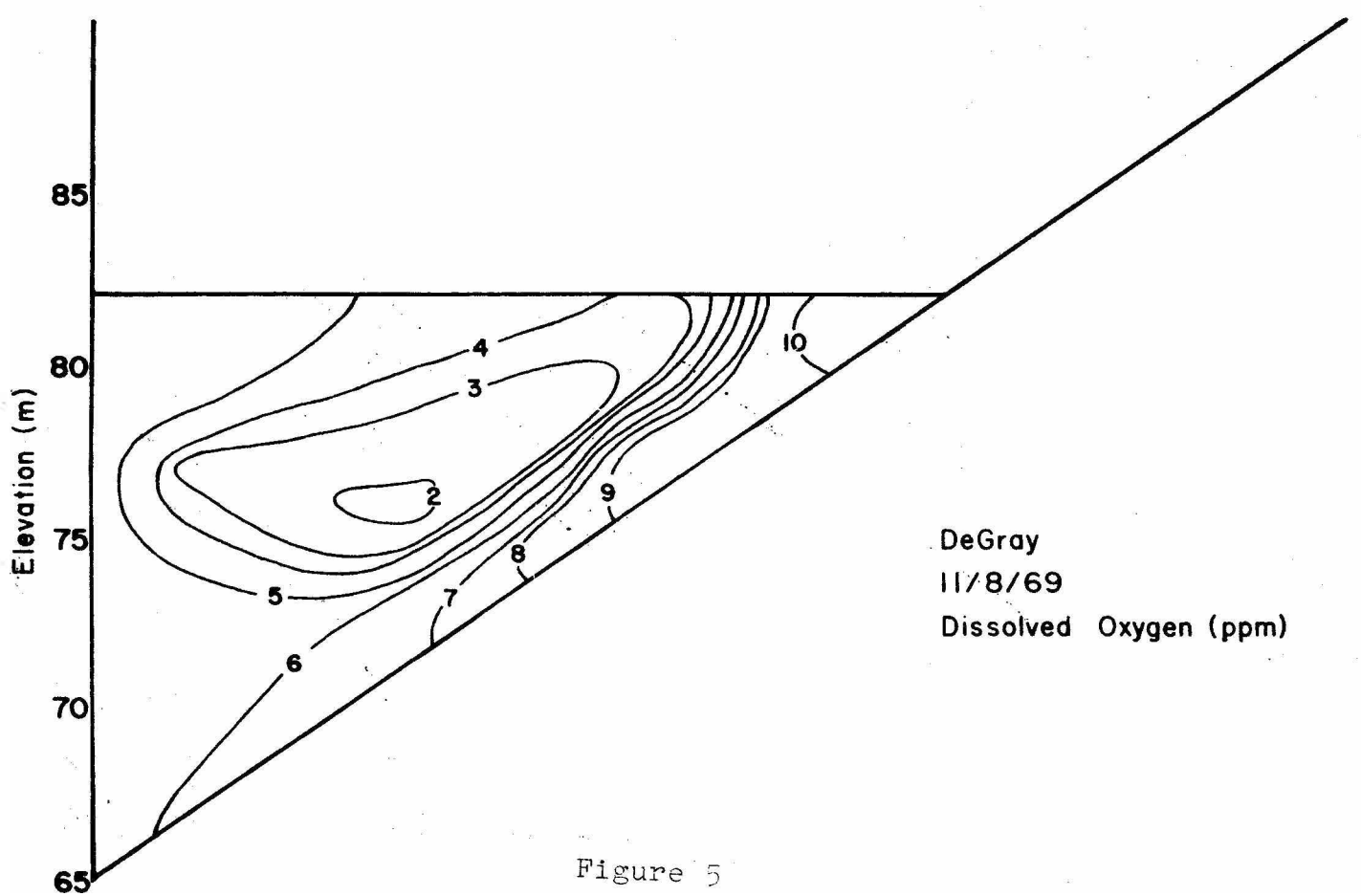
85
80
75
70
65
Elevation (m)
2
3
4
5
6
7
8
9
10
DeGray
11/8/69
Dissolved Oxygen (ppm)

Figure 5

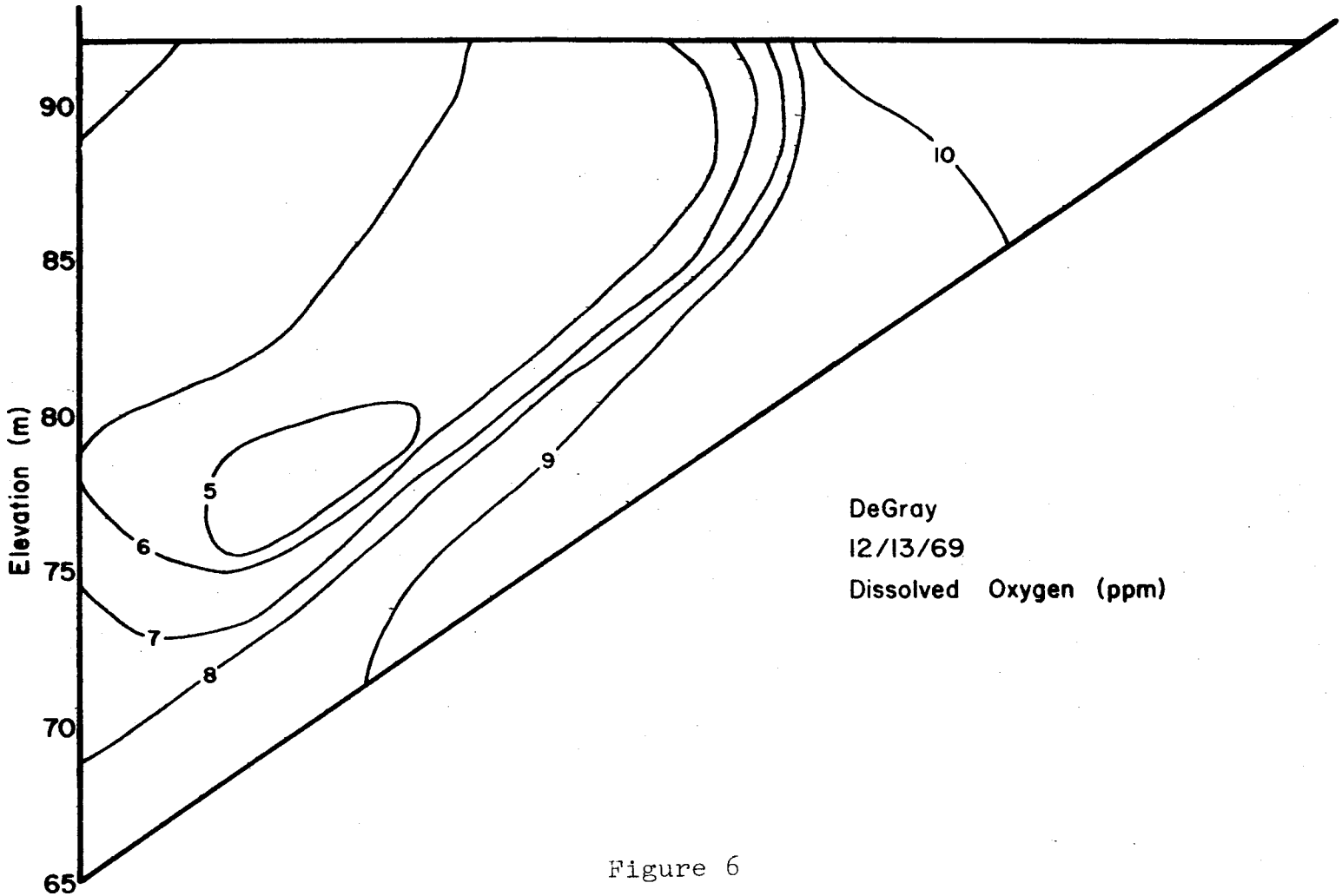
90
85
80
75
70
65
Elevation (m)
5
6
7
8
9
10
DeGray
12/13/69
Dissolved Oxygen (ppm)

Figure 6

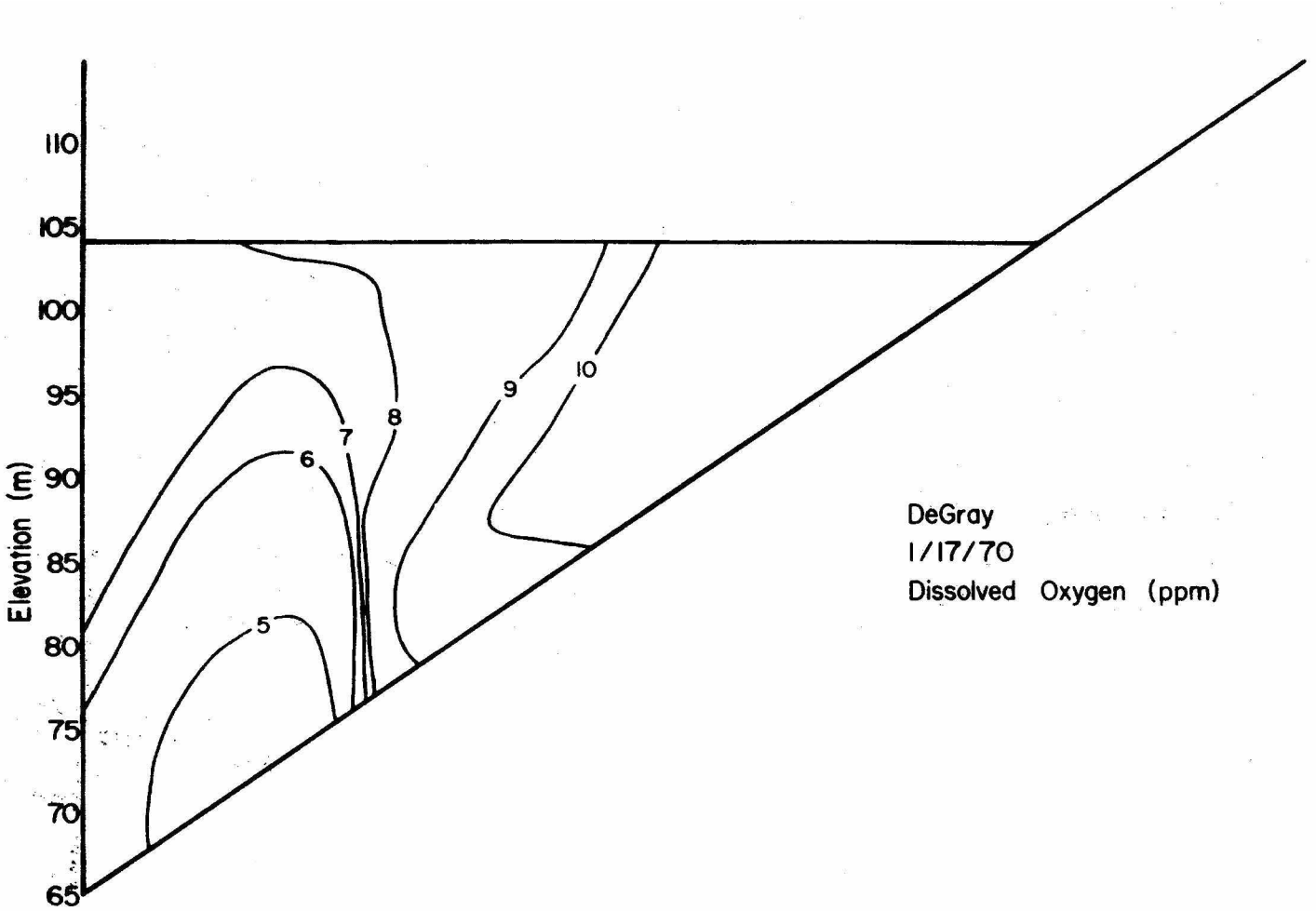
110
105
100
95
90
85
80
75
70
65
Elevation (m)
5
6
7
8
9
10
DeGray
1/17/70
Dissolved Oxygen (ppm)

Figure 7

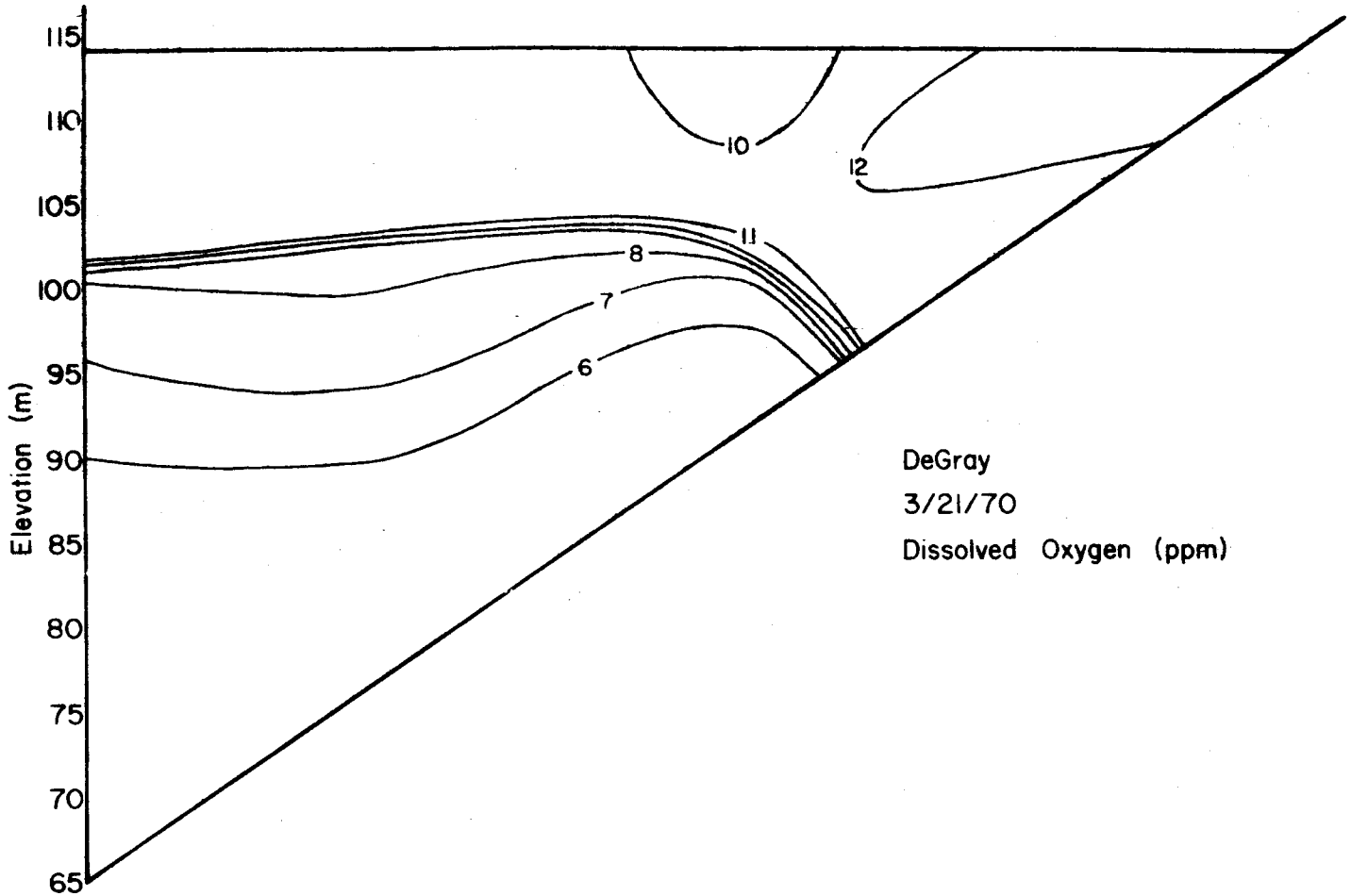
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
10
12
11
8
7
6
DeGray
3/21/70
Dissolved Oxygen (ppm)

Figure 8

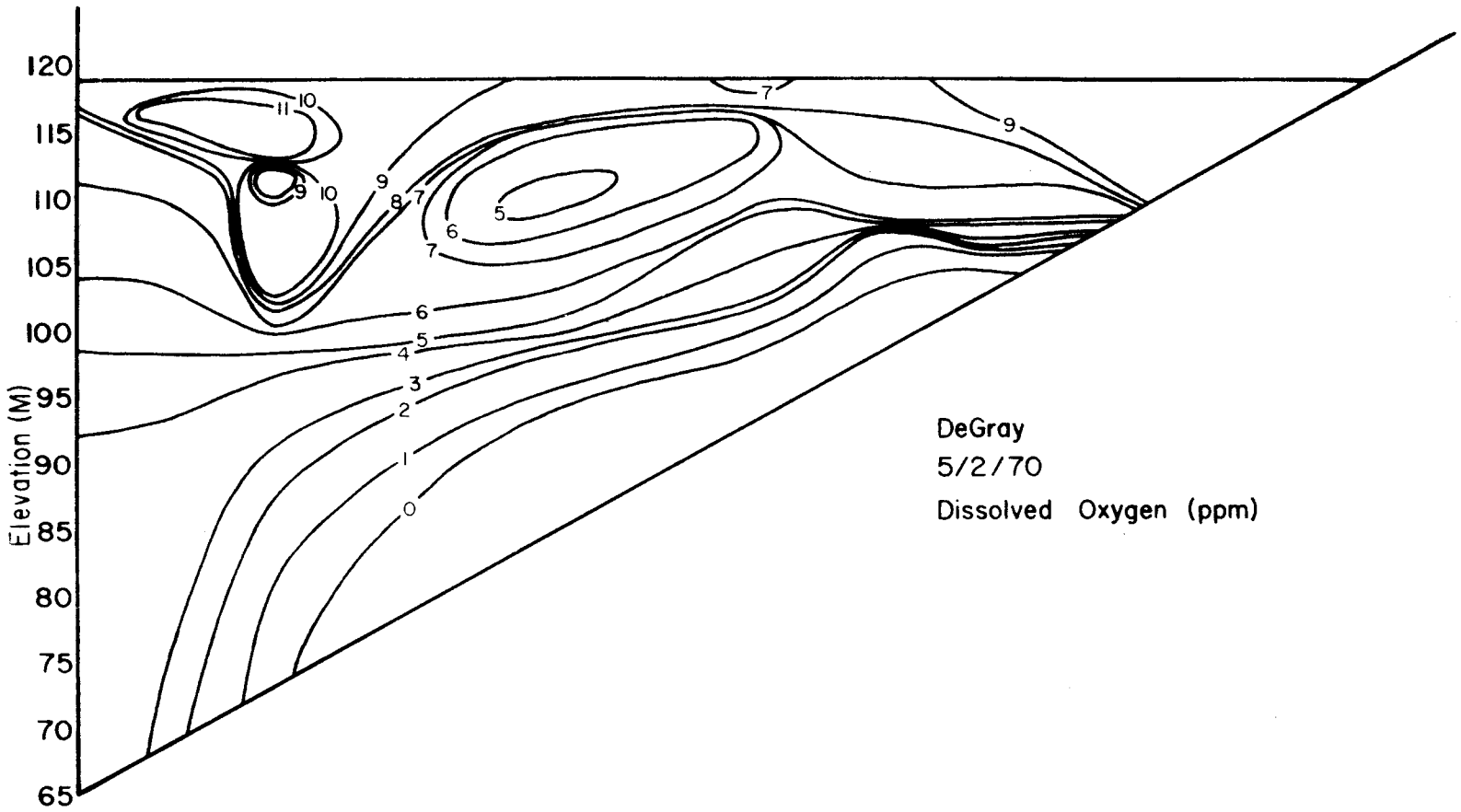
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (M)
DeGray
5/2/70
Dissolved Oxygen (ppm)

Figure 9

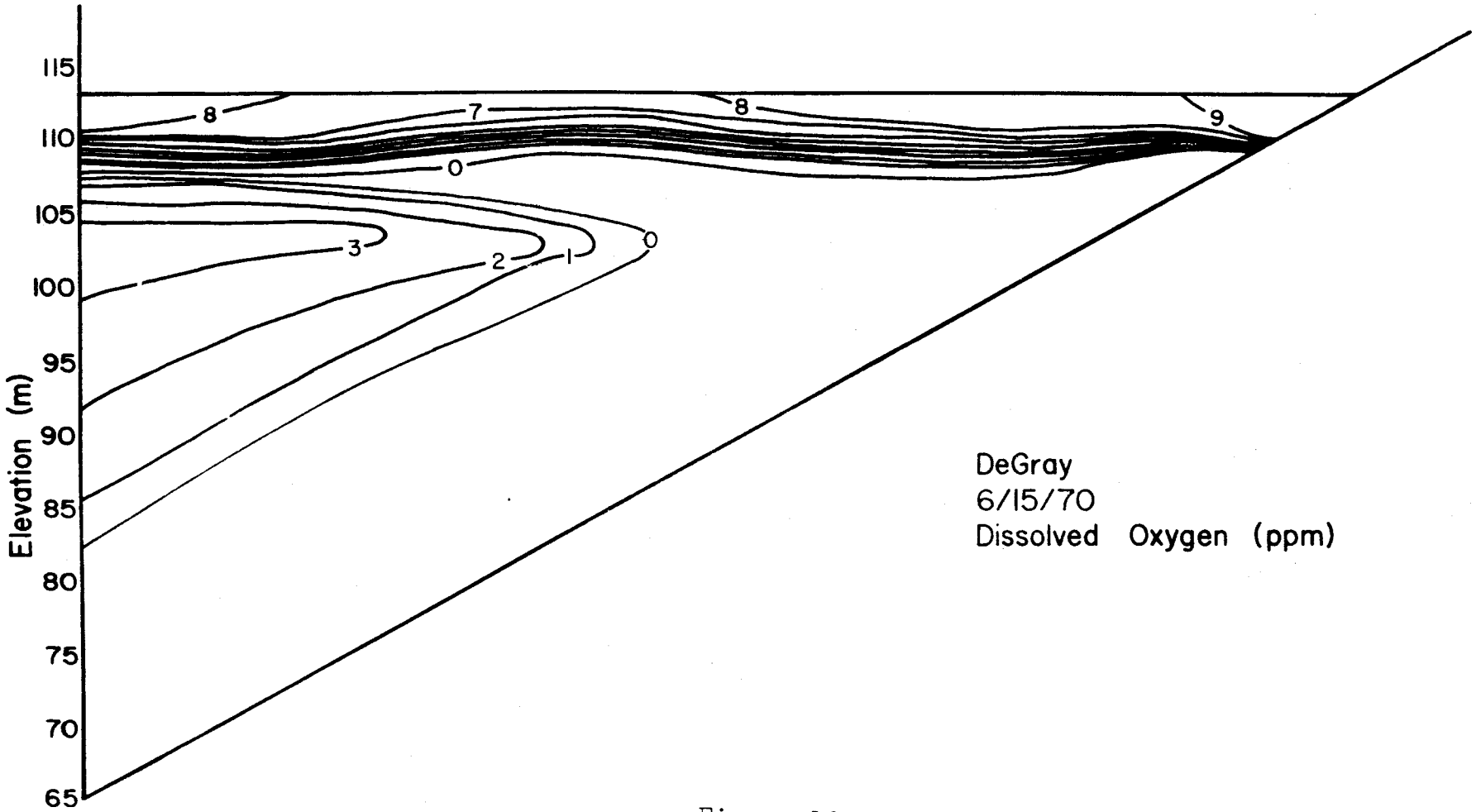
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
8
7
8
9
0
3
2
1
0
DeGray
6/15/70
Dissolved Oxygen (ppm)

Figure 10

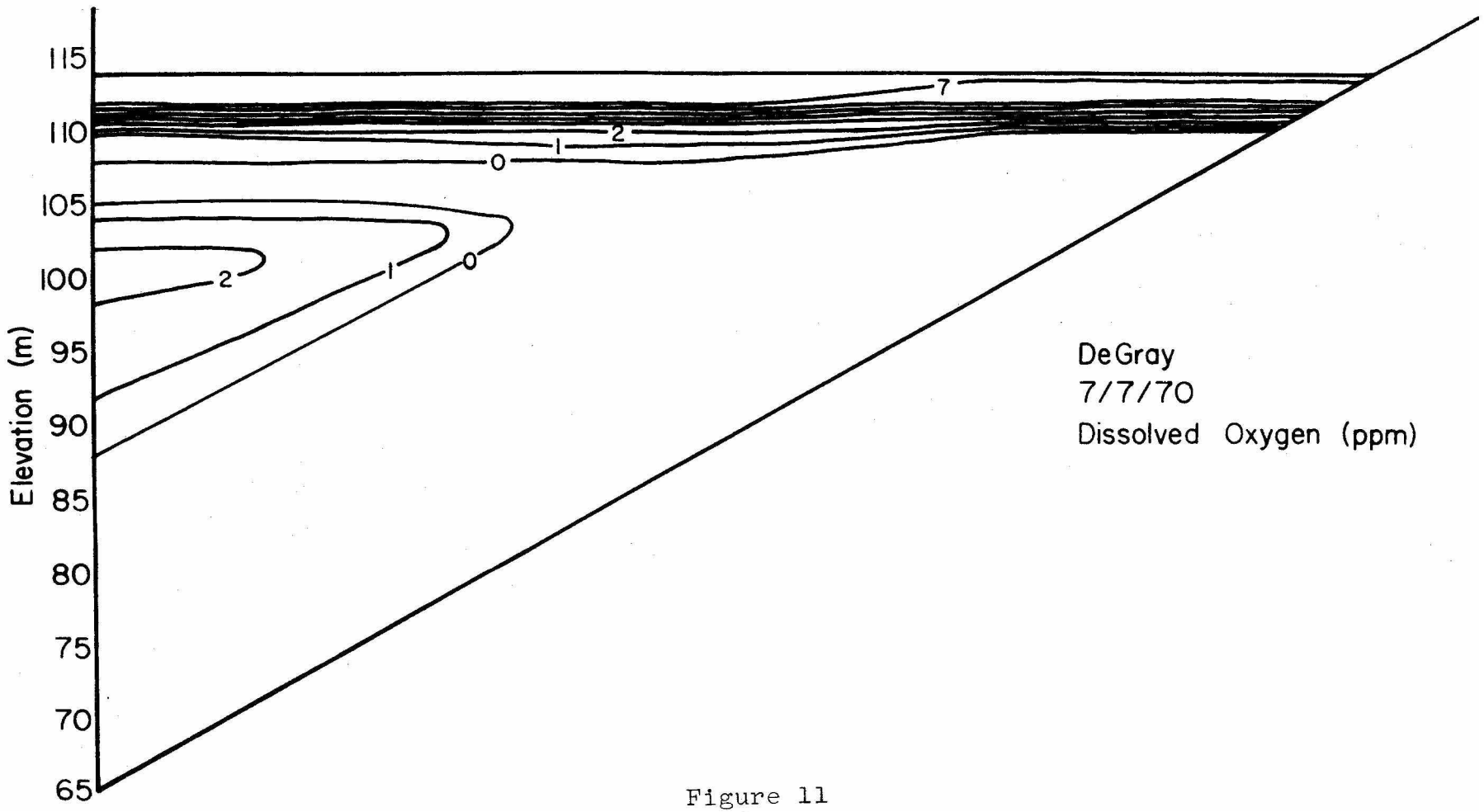
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
7
2
1
0
2
1
0
DeGray
7/7/70
Dissolved Oxygen (ppm)

Figure 11

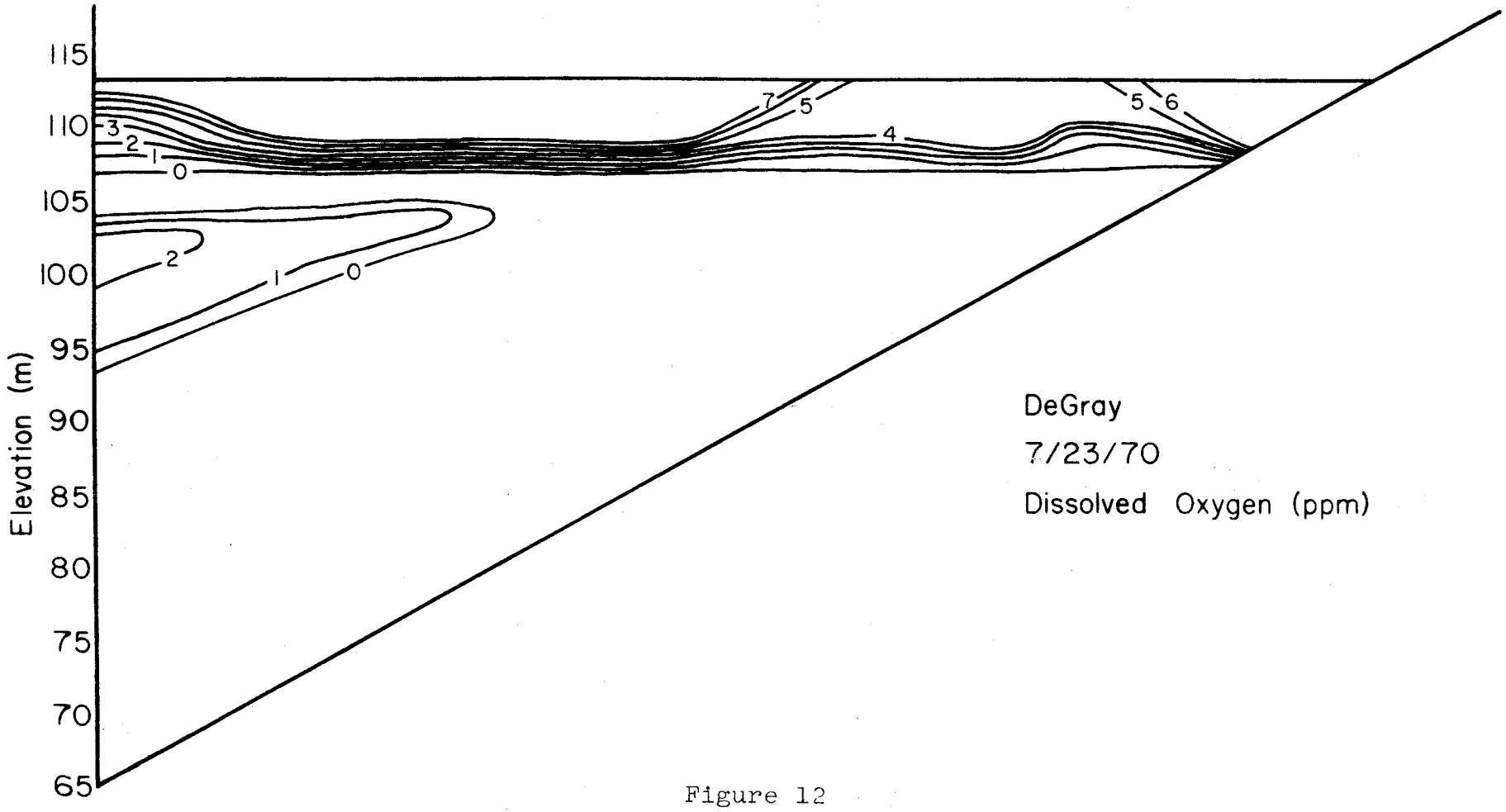
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
7
5
5
6
4
3
2
1
0
2
1
0
DeGray
7/23/70
Dissolved Oxygen (ppm)

Figure 12

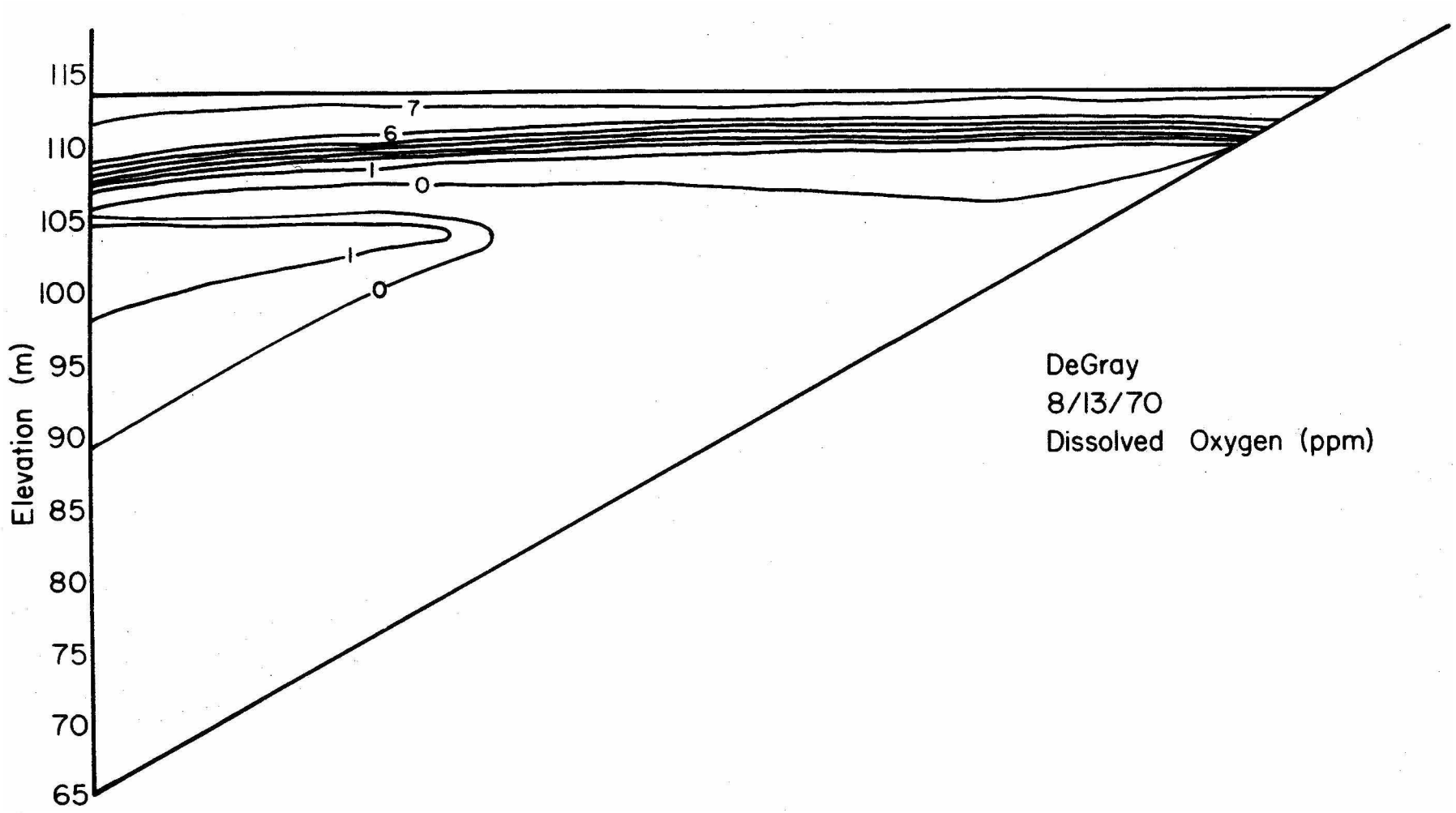
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
7
6
1
0
1
0
DeGray
8/13/70
Dissolved Oxygen (ppm)

Figure 13

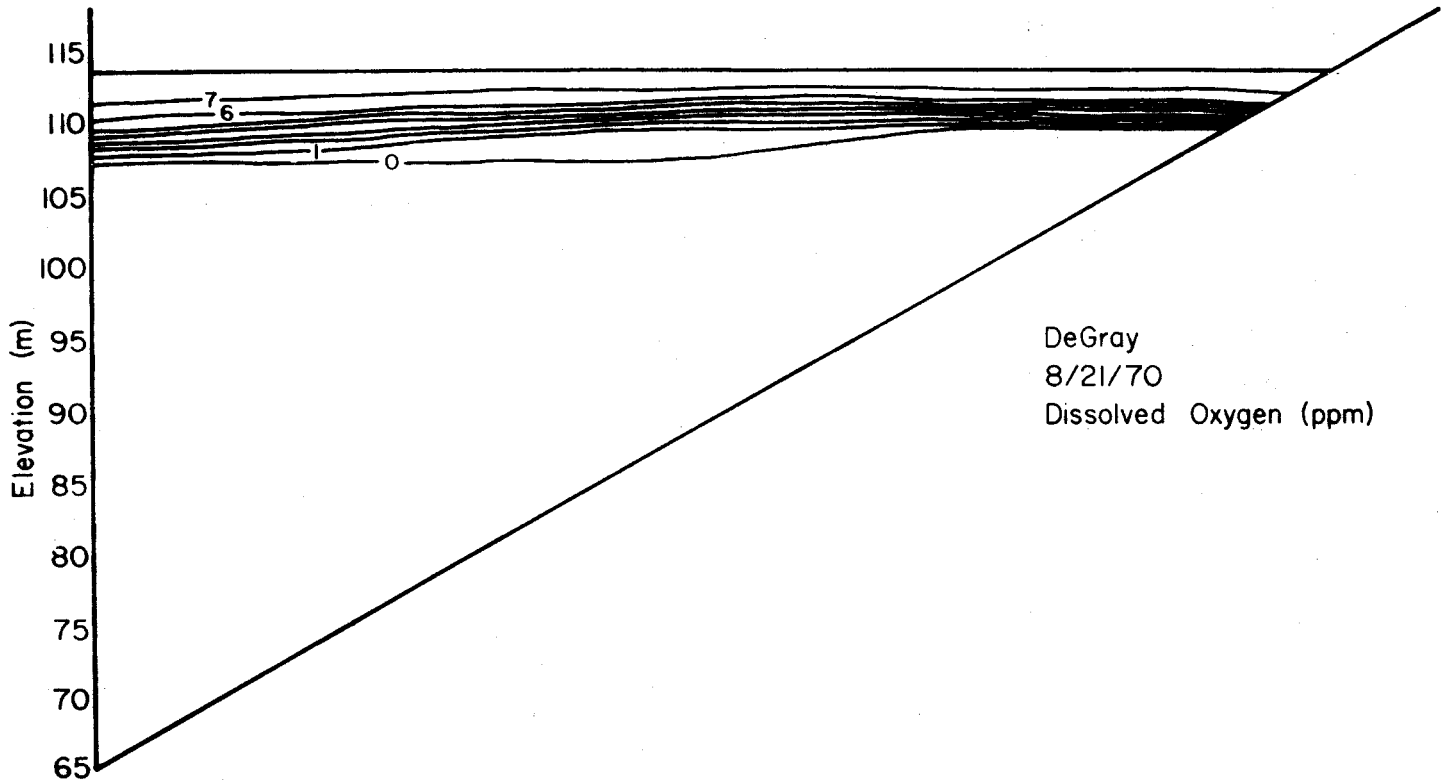
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
7
6
1
0
DeGray
8/21/70
Dissolved Oxygen (ppm)

Figure 14

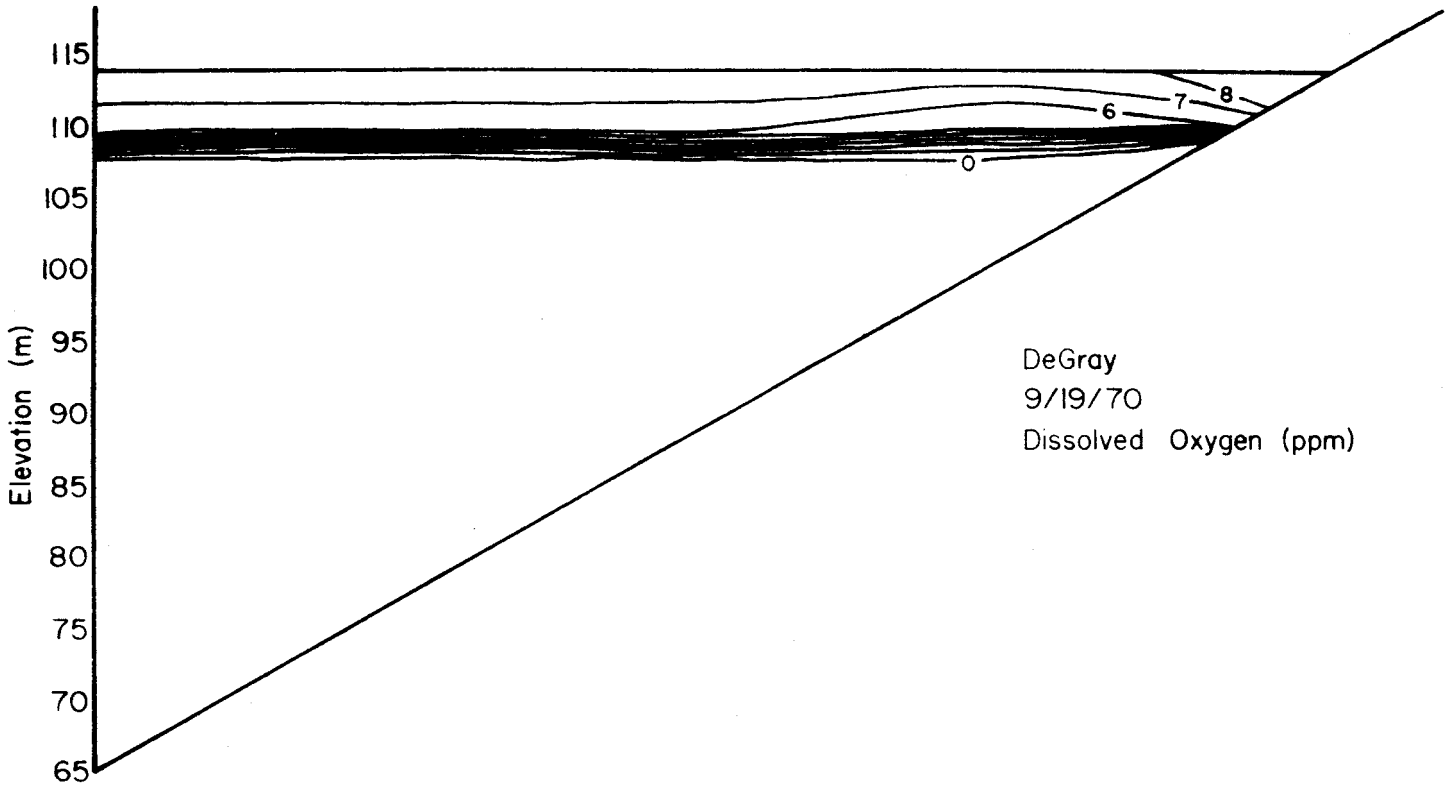
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
8
7
6
0
DeGray
9/19/70
Dissolved Oxygen (ppm)

Figure 15

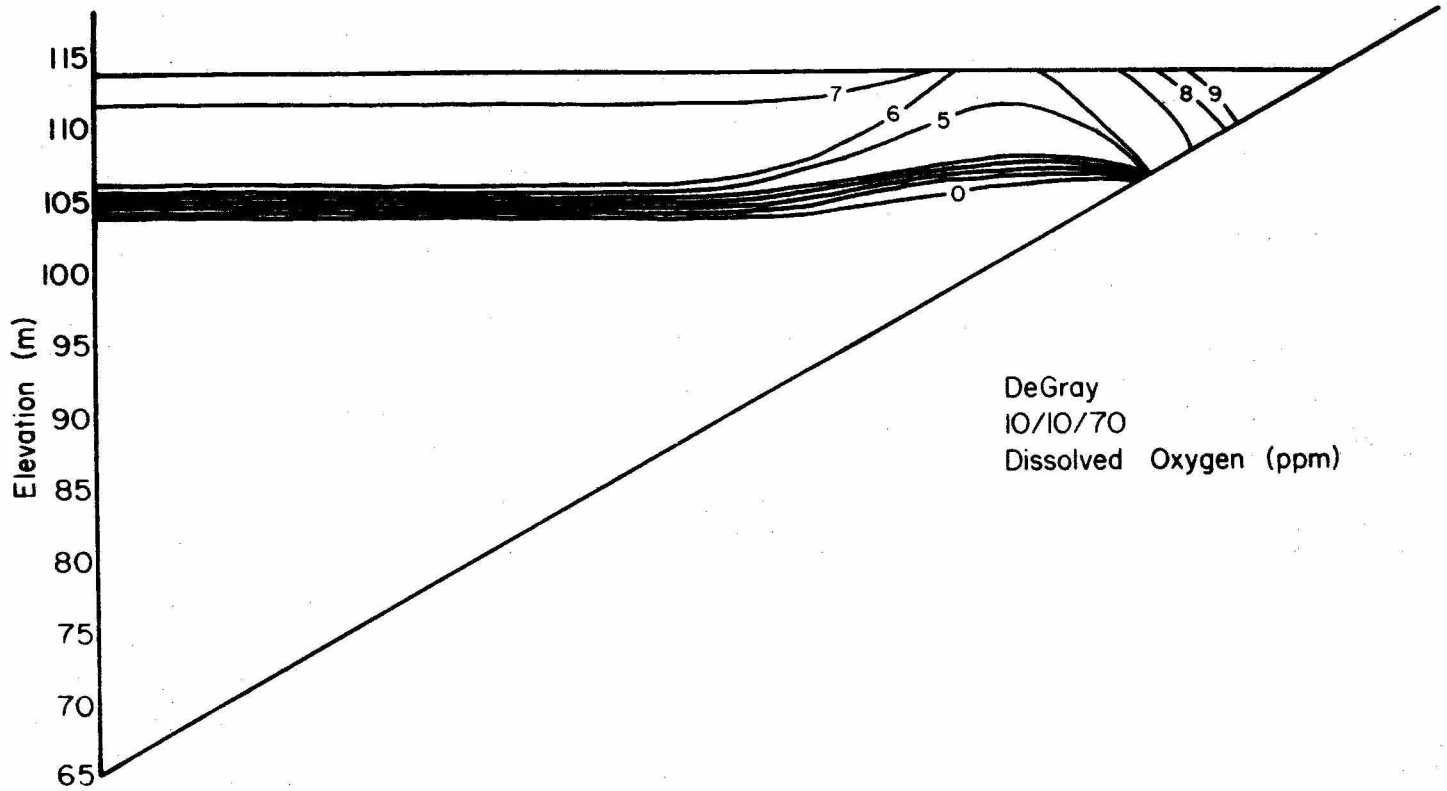
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
7
6
5
8
9
0
DeGray
10/10/70
Dissolved Oxygen (ppm)

Figure 16

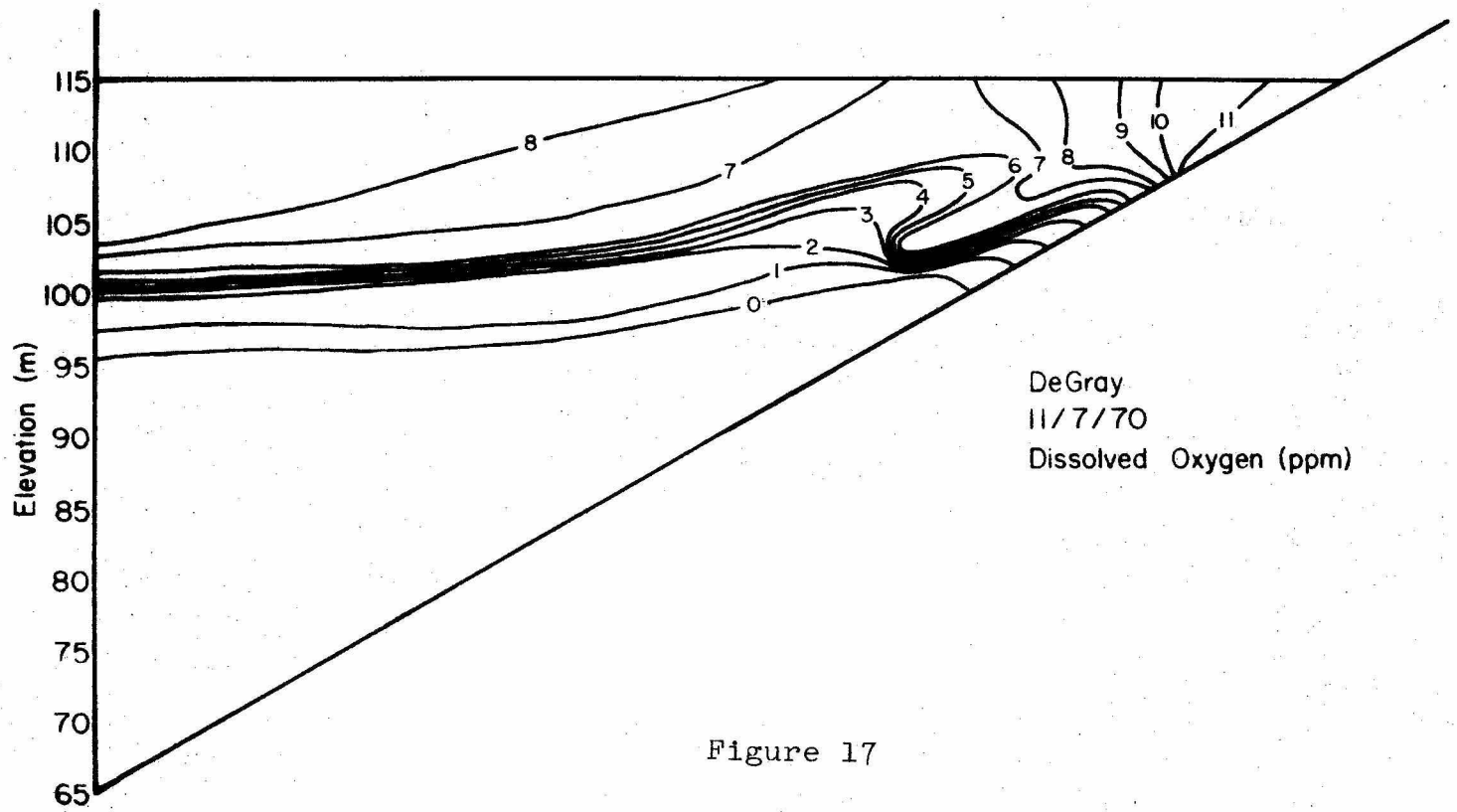
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
8
7
6
5
4
3
2
1
0
7
8
9
10
11
DeGray
11/7/70
Dissolved Oxygen (ppm)

Figure 17

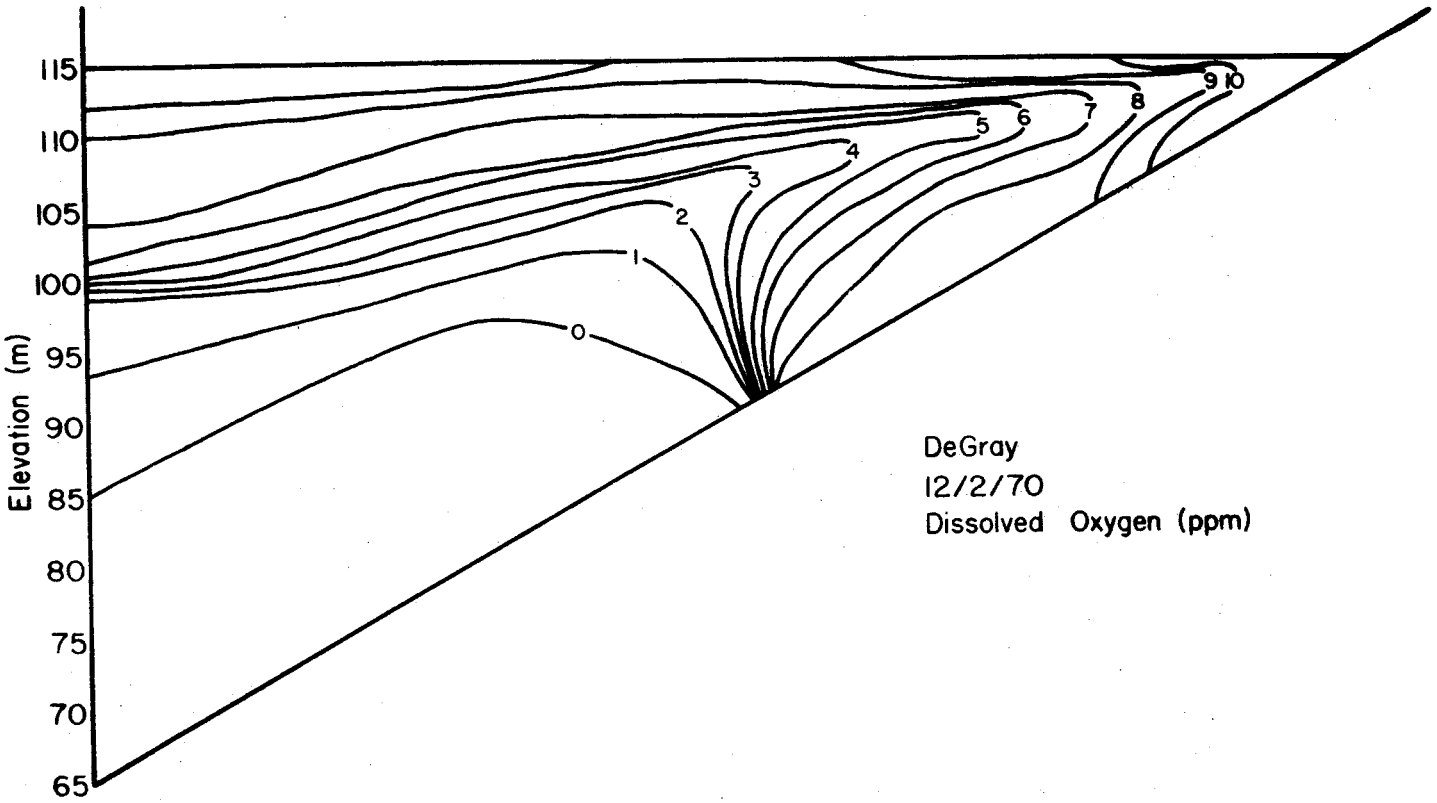
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
0
1
2
3
4
5
6
7
8
9
10
DeGray
12/2/70
Dissolved Oxygen (ppm)

Figure 18

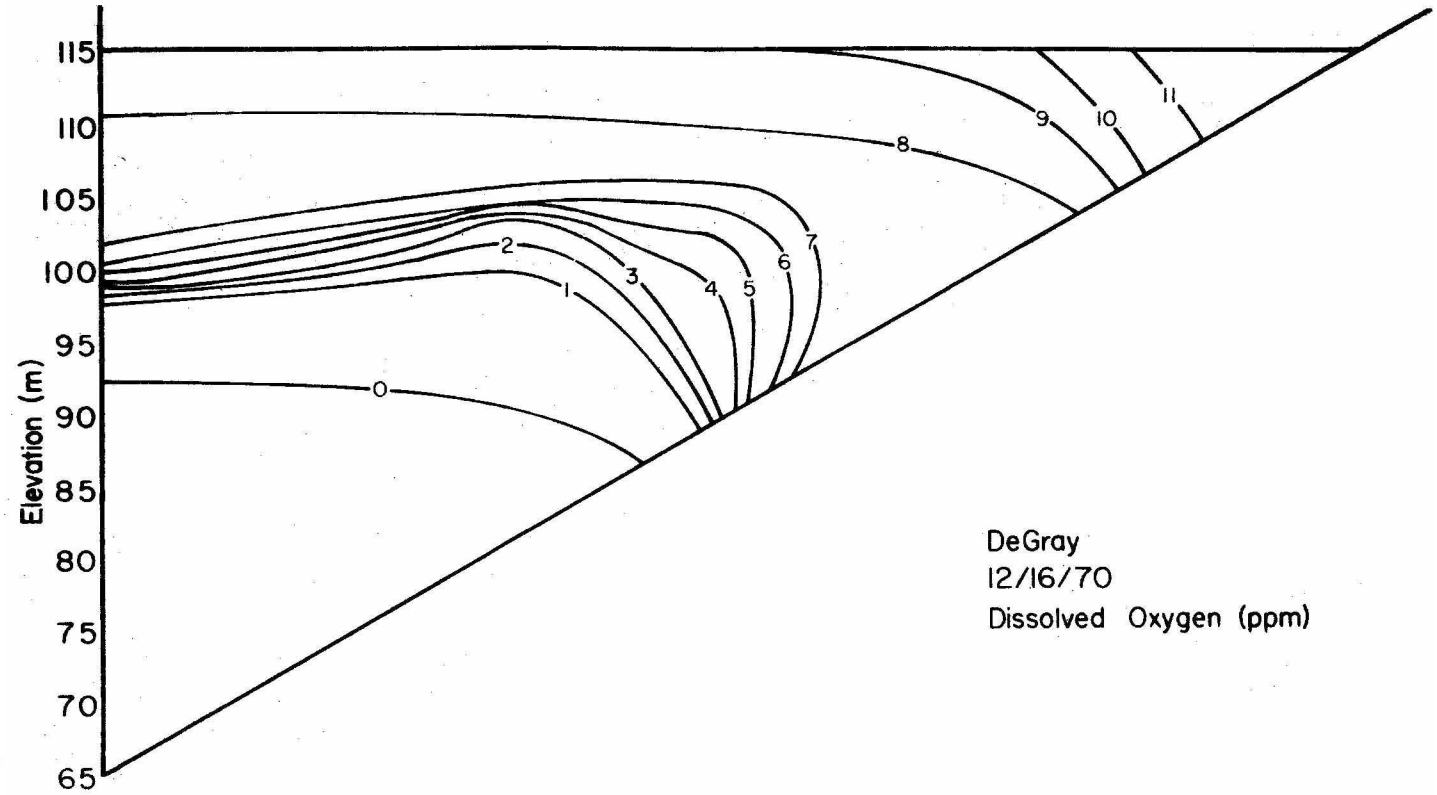
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
0
1
2
3
4
5
6
7
8
9
10
11
DeGray
12/16/70
Dissolved Oxygen (ppm)

Figure 19

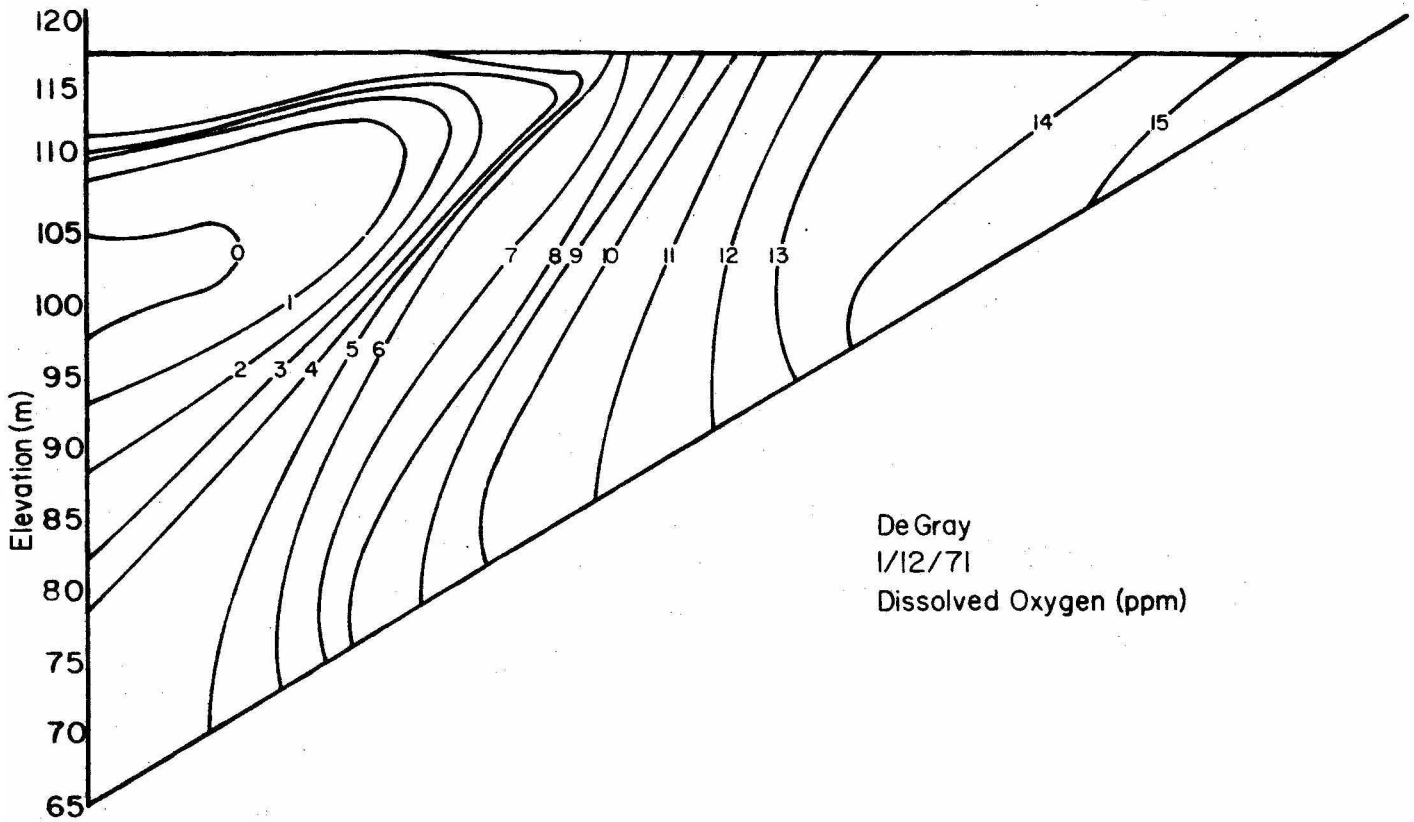
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
De Gray
1/12/71
Dissolved Oxygen (ppm)

Figure 20

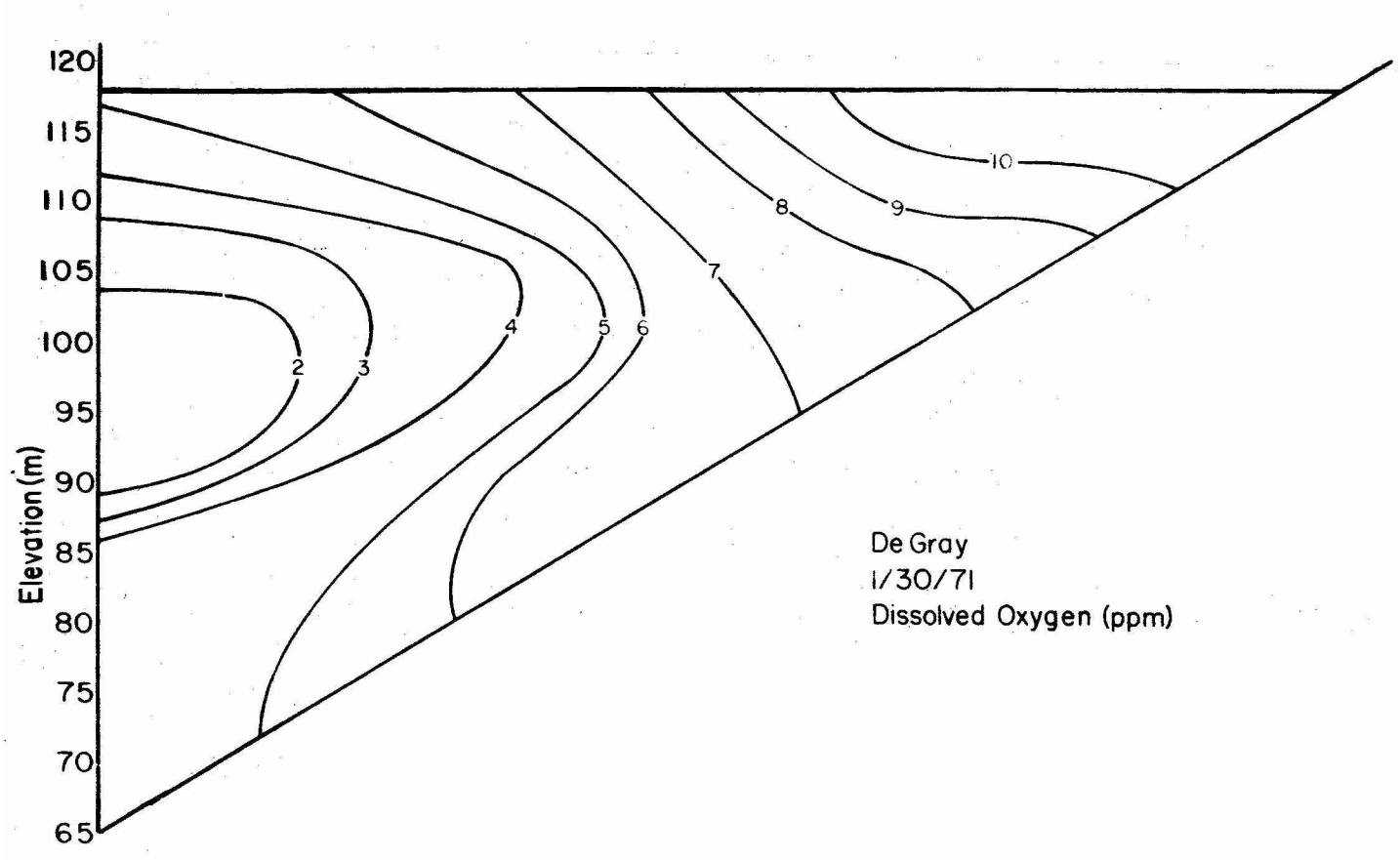
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
2
3
4
5
6
7
8
9
10
De Gray
1/30/71
Dissolved Oxygen (ppm)

Figure 21

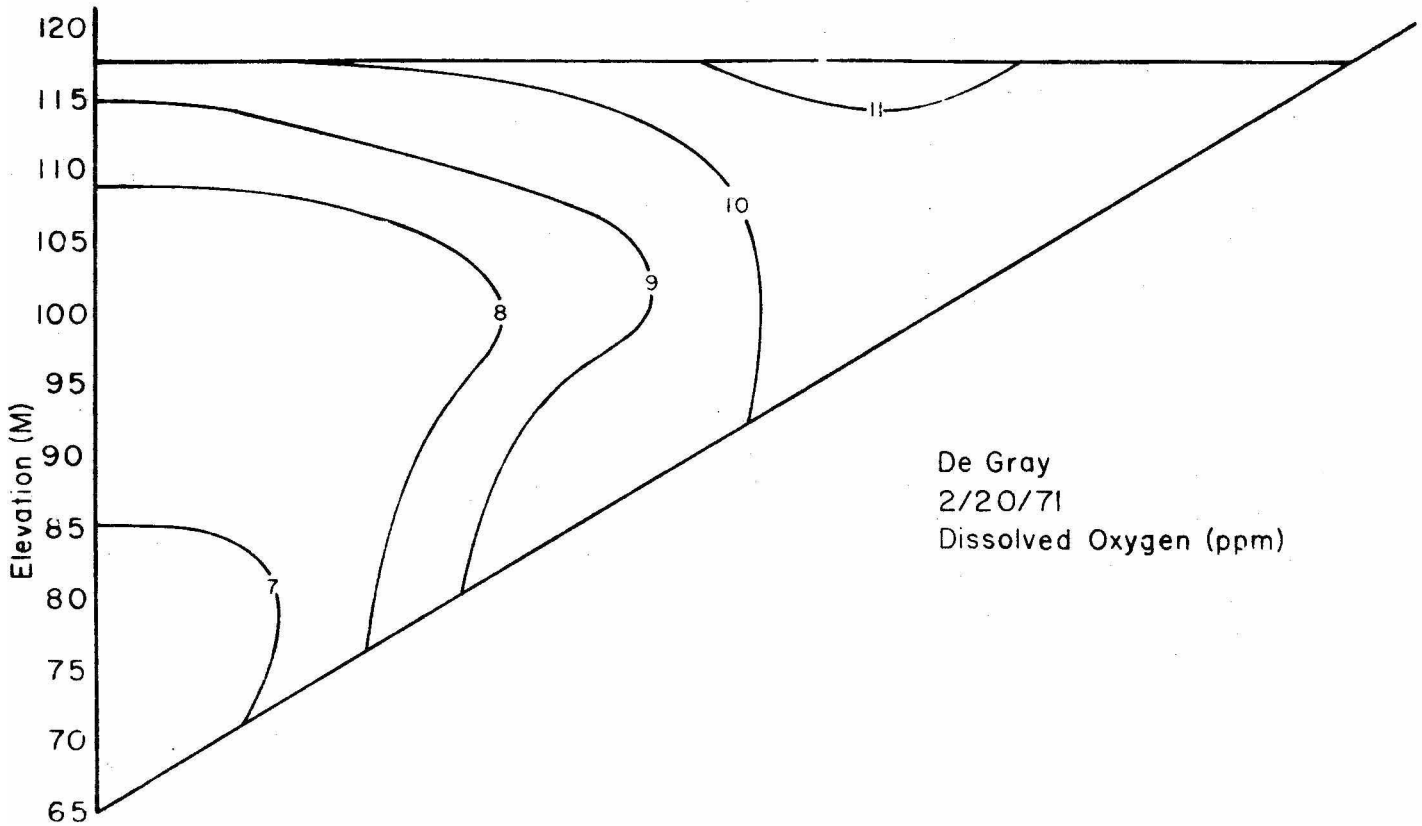
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (M)
11
10
9
8
7
De Gray
2/20/71
Dissolved Oxygen (ppm)

Figure 22

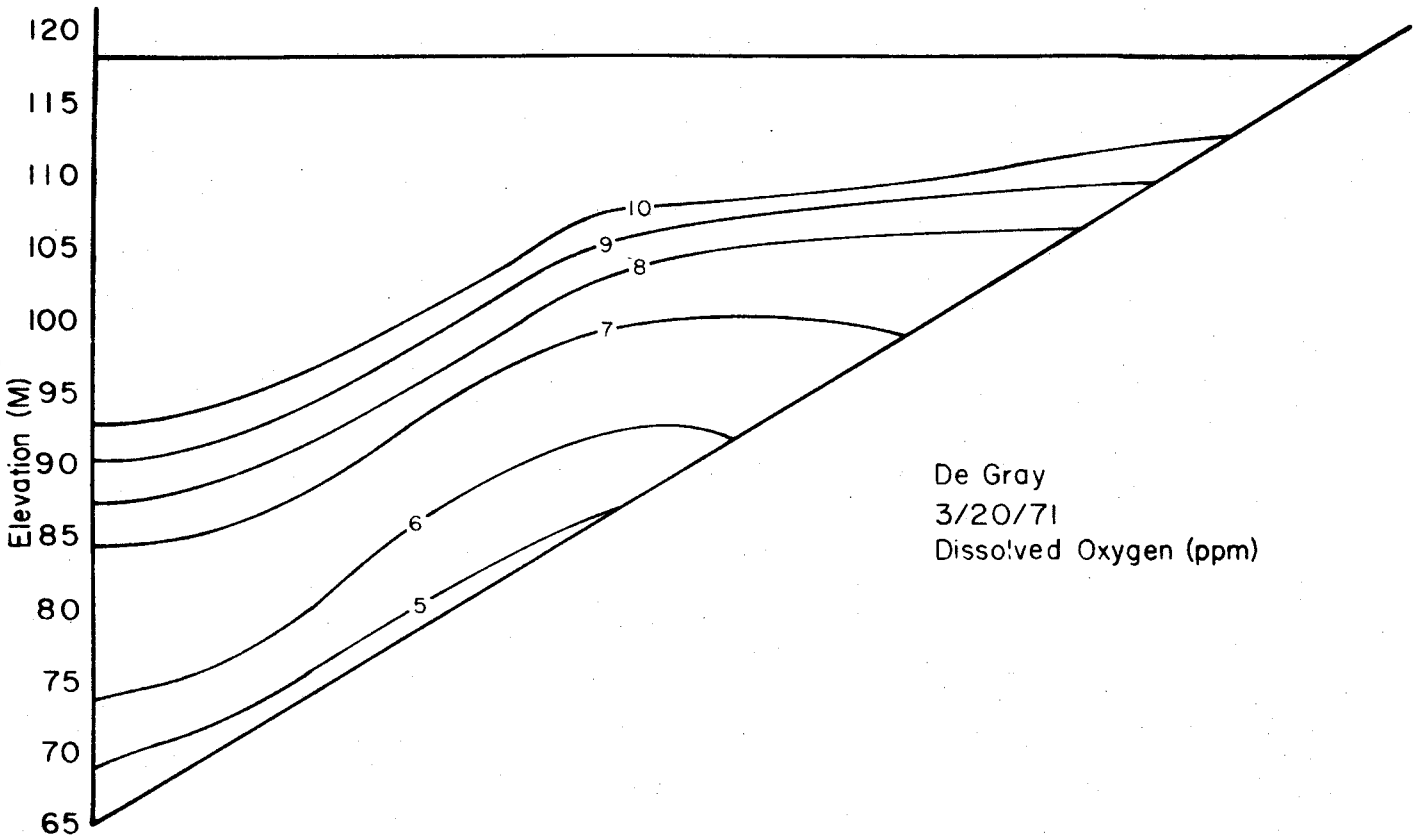
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (M)
10
9
8
7
6
5
De Gray
3/20/71
Dissolved Oxygen (ppm)

Figure 23

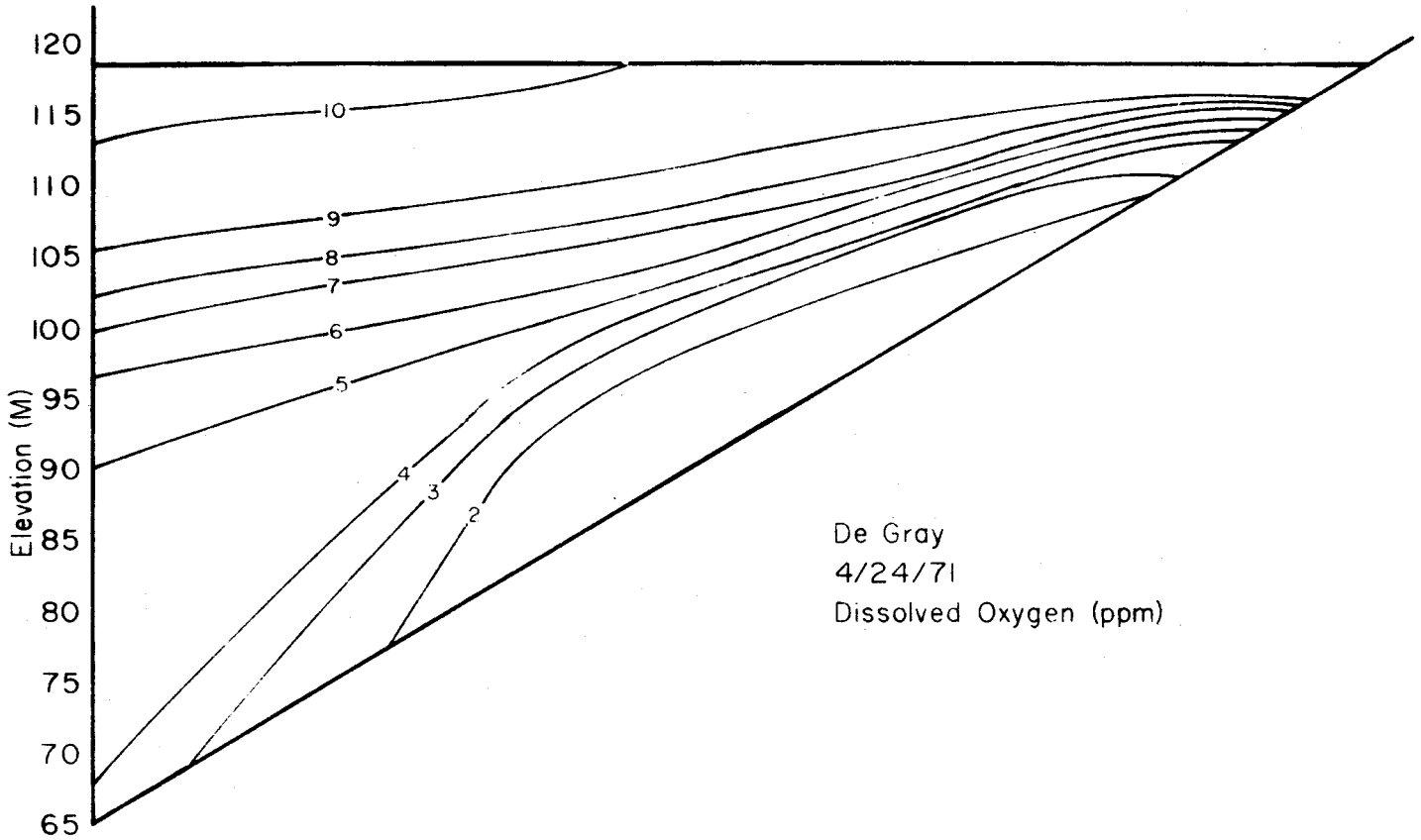
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (M)
10
9
8
7
6
5
4
3
2
De Gray
4/24/71
Dissolved Oxygen (ppm)

Figure 24

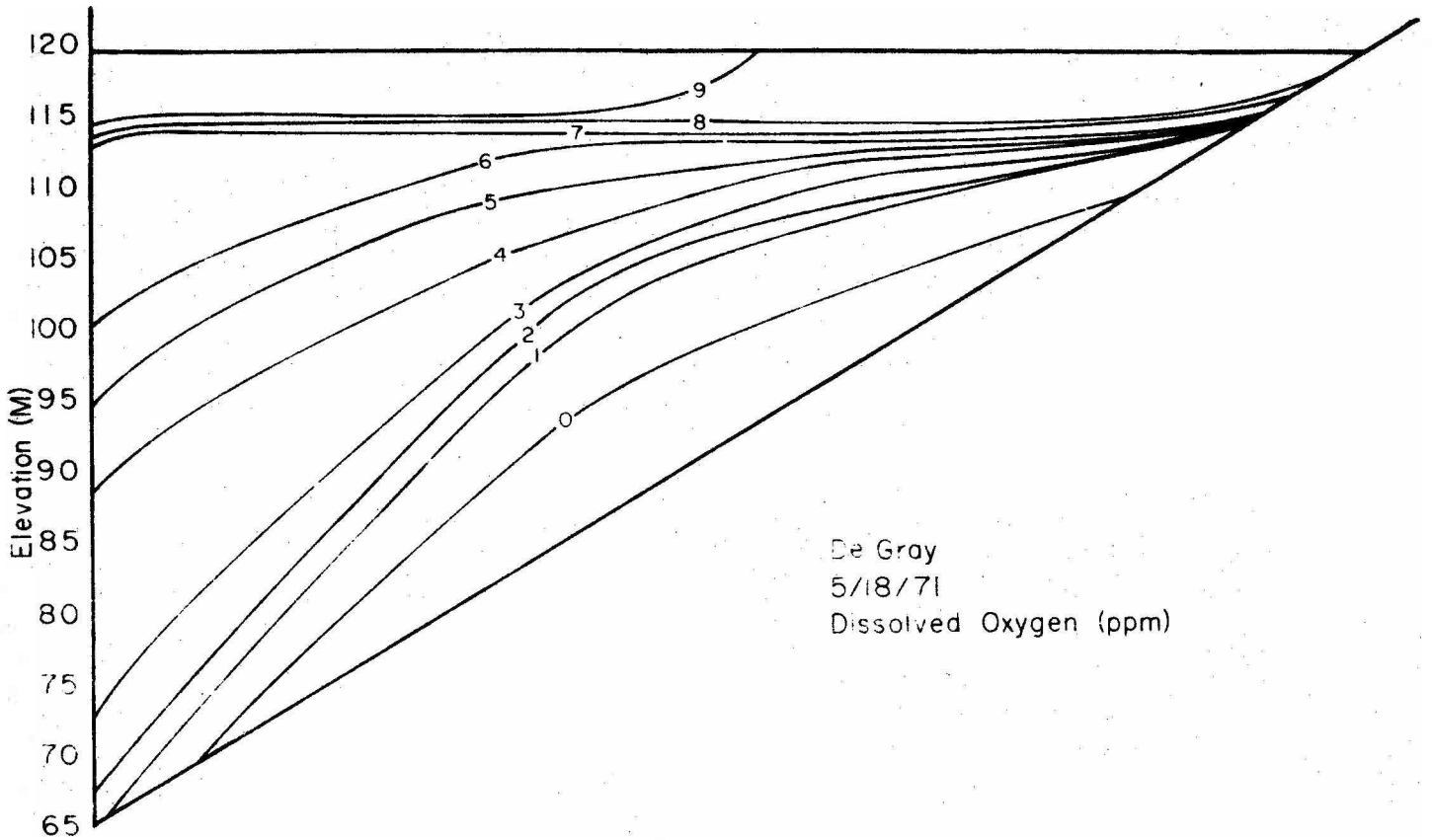
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (M)
9
8
7
6
5
4
3
2
1
0
De Gray
5/18/71
Dissolved Oxygen (ppm)

Figure 25

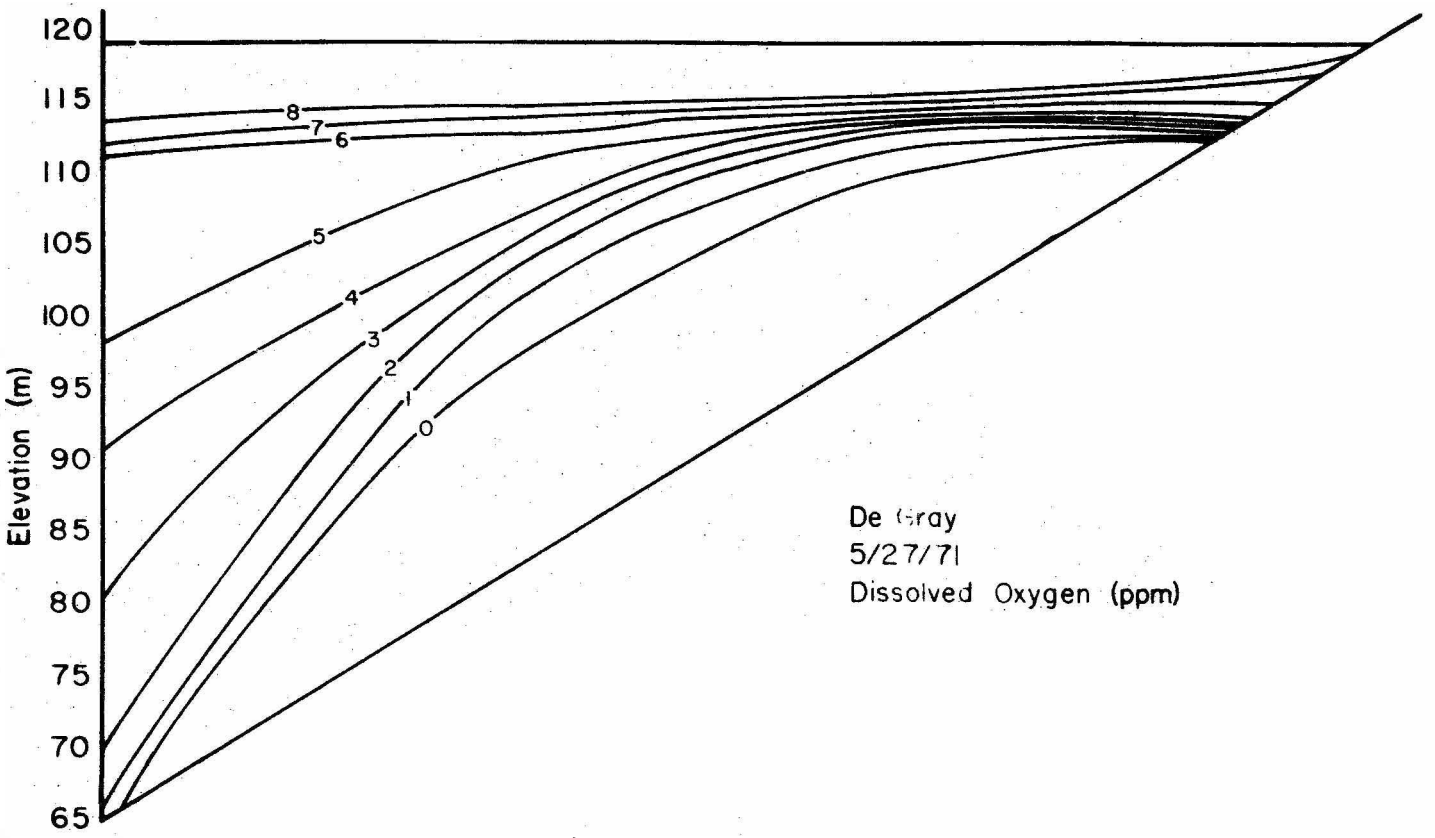
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
8
7
6
5
4
3
2
1
0
De Gray
5/27/71
Dissolved Oxygen (ppm)

Figure 26

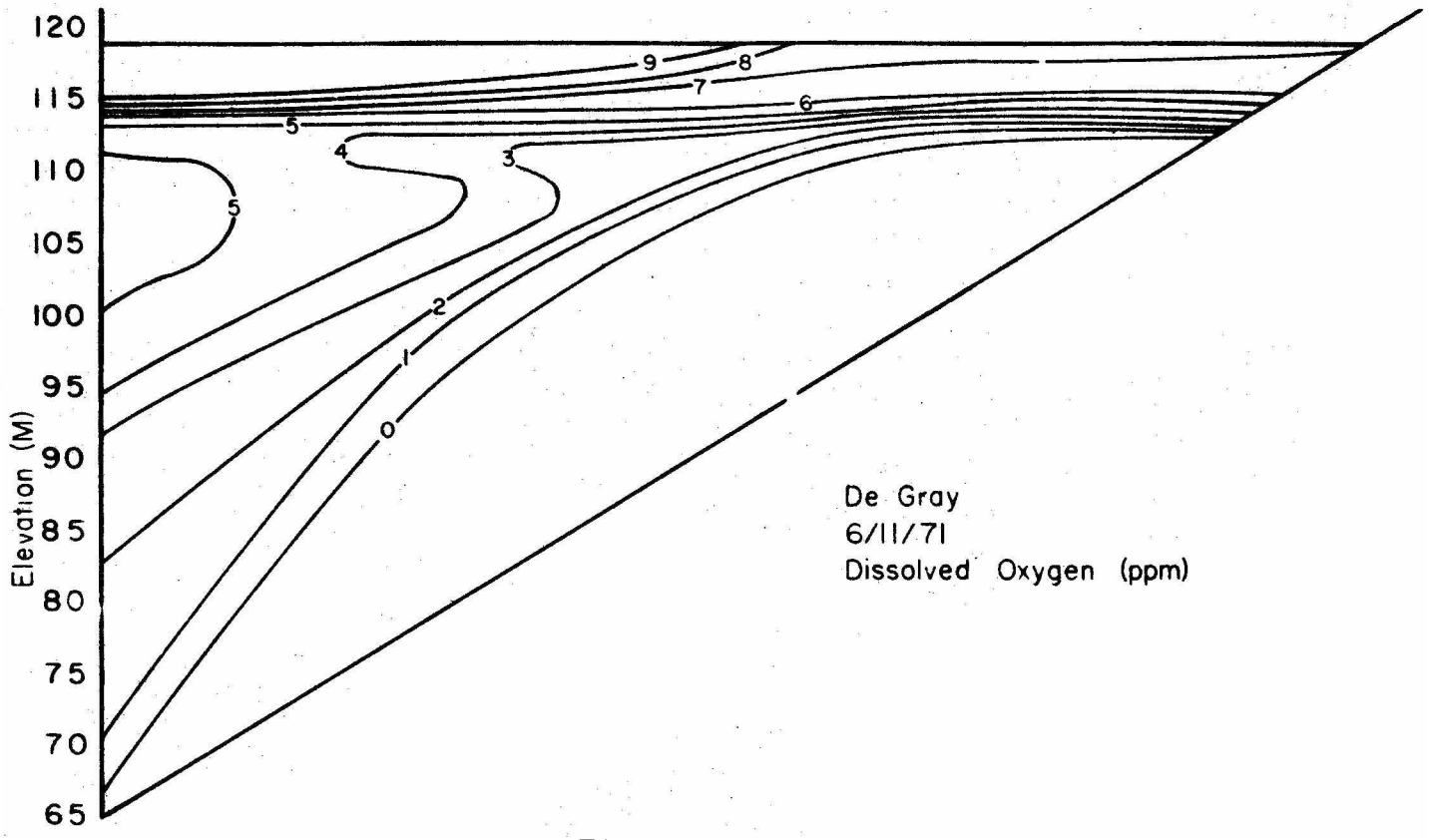
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (M)
9
8
7
6
5
4
3
5
2
1
0
De Gray
6/11/71
Dissolved Oxygen (ppm)

Figure 27

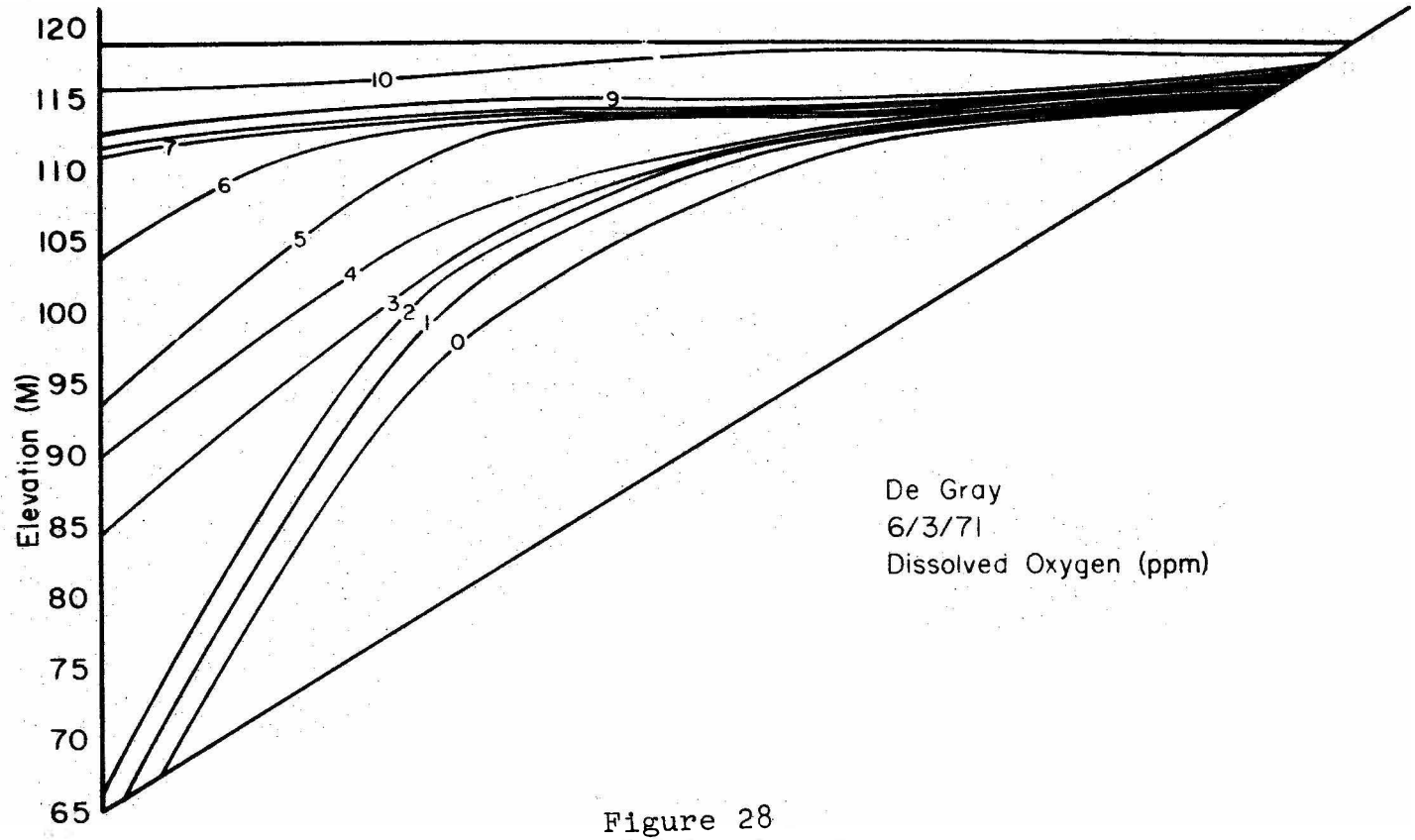
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (M)
10
9
7
6
5
4
3
2
1
0
De Gray
6/3/71
Dissolved Oxygen (ppm)

Figure 28

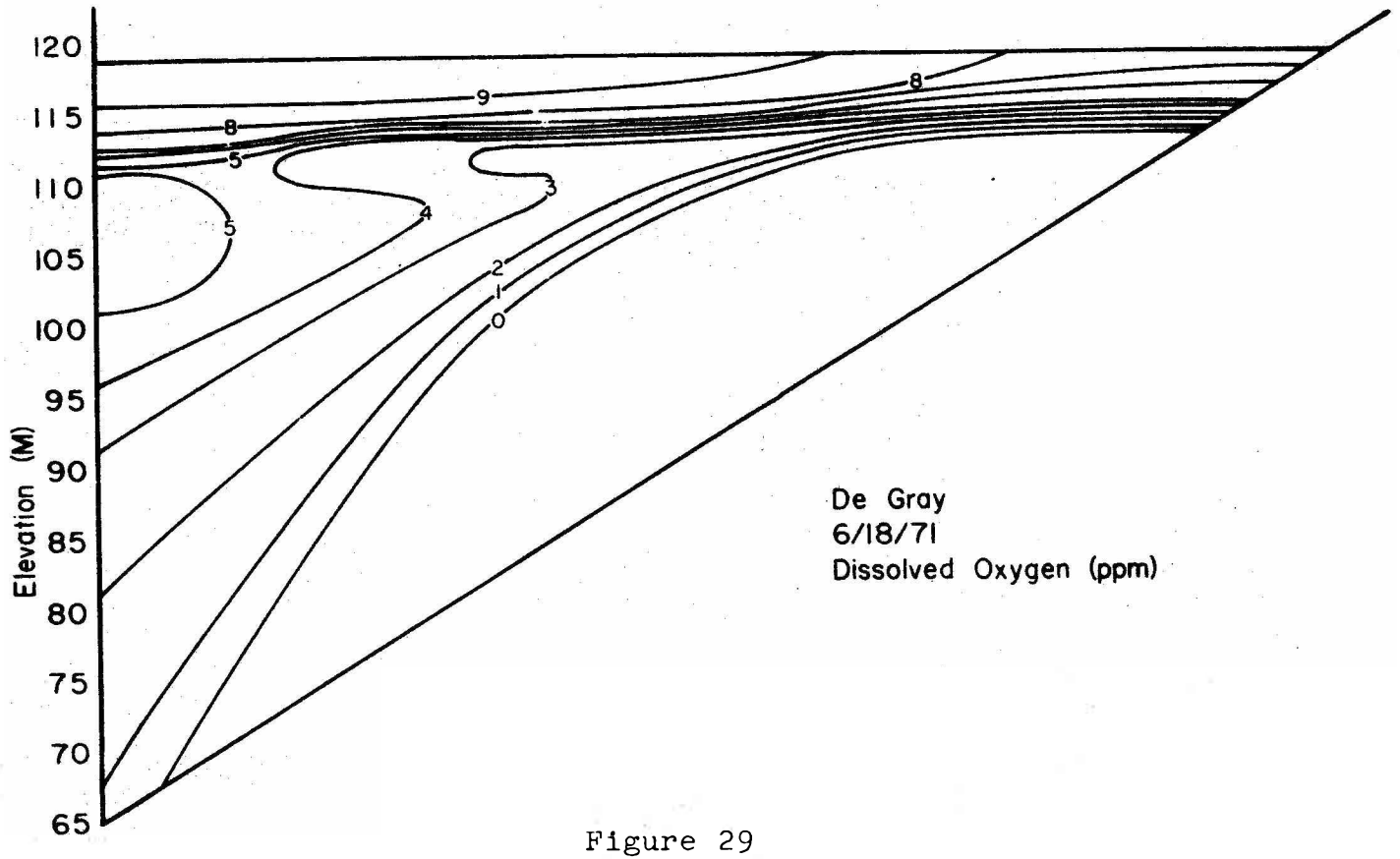
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (M)
9
8
8
5
5
4
3
2
1
0
De Gray
6/18/71
Dissolved Oxygen (ppm)

Figure 29

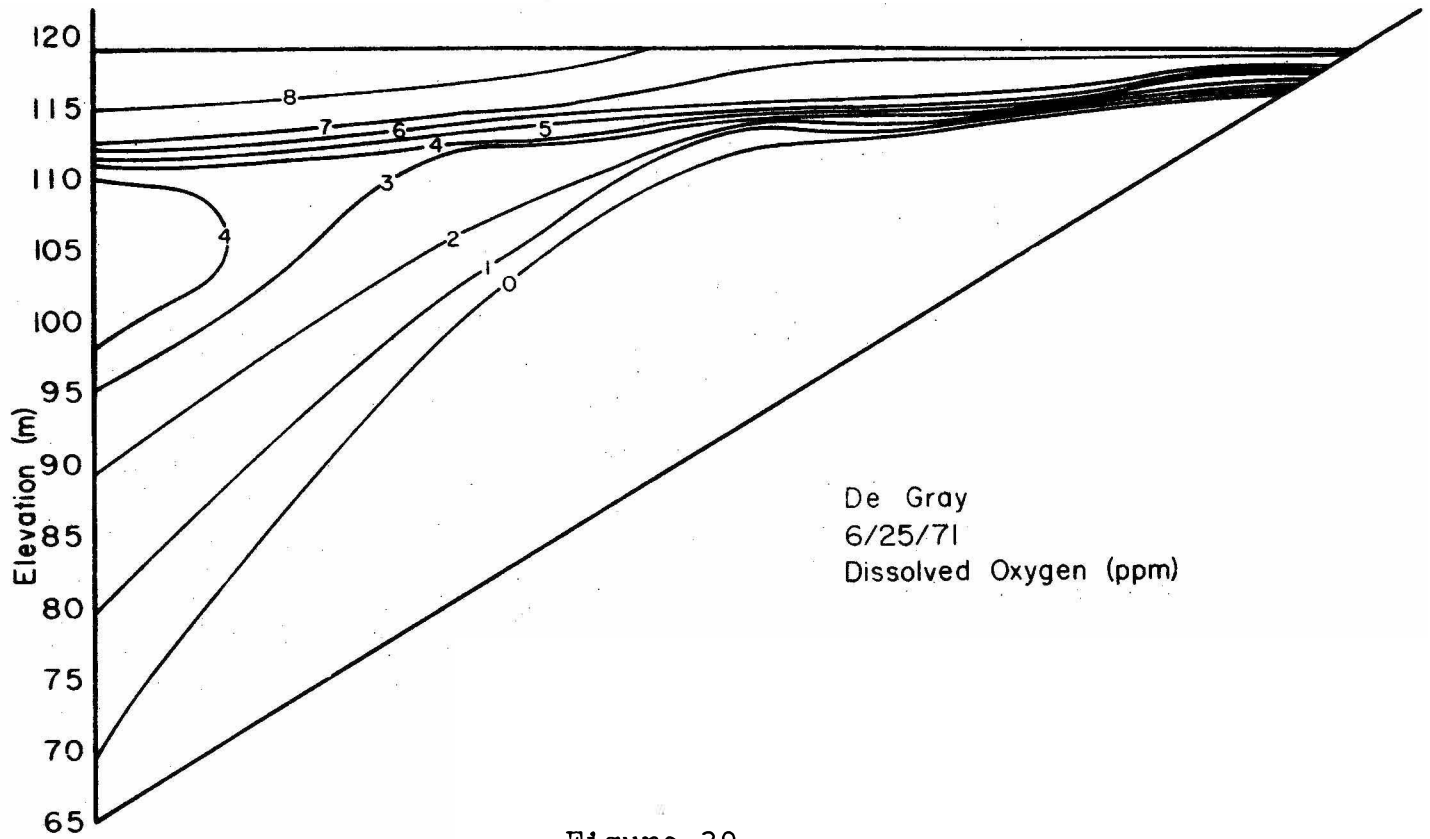
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
8
7
6
5
4
3
2
1
0
4
De Gray
6/25/71
Dissolved Oxygen (ppm)

Figure 30

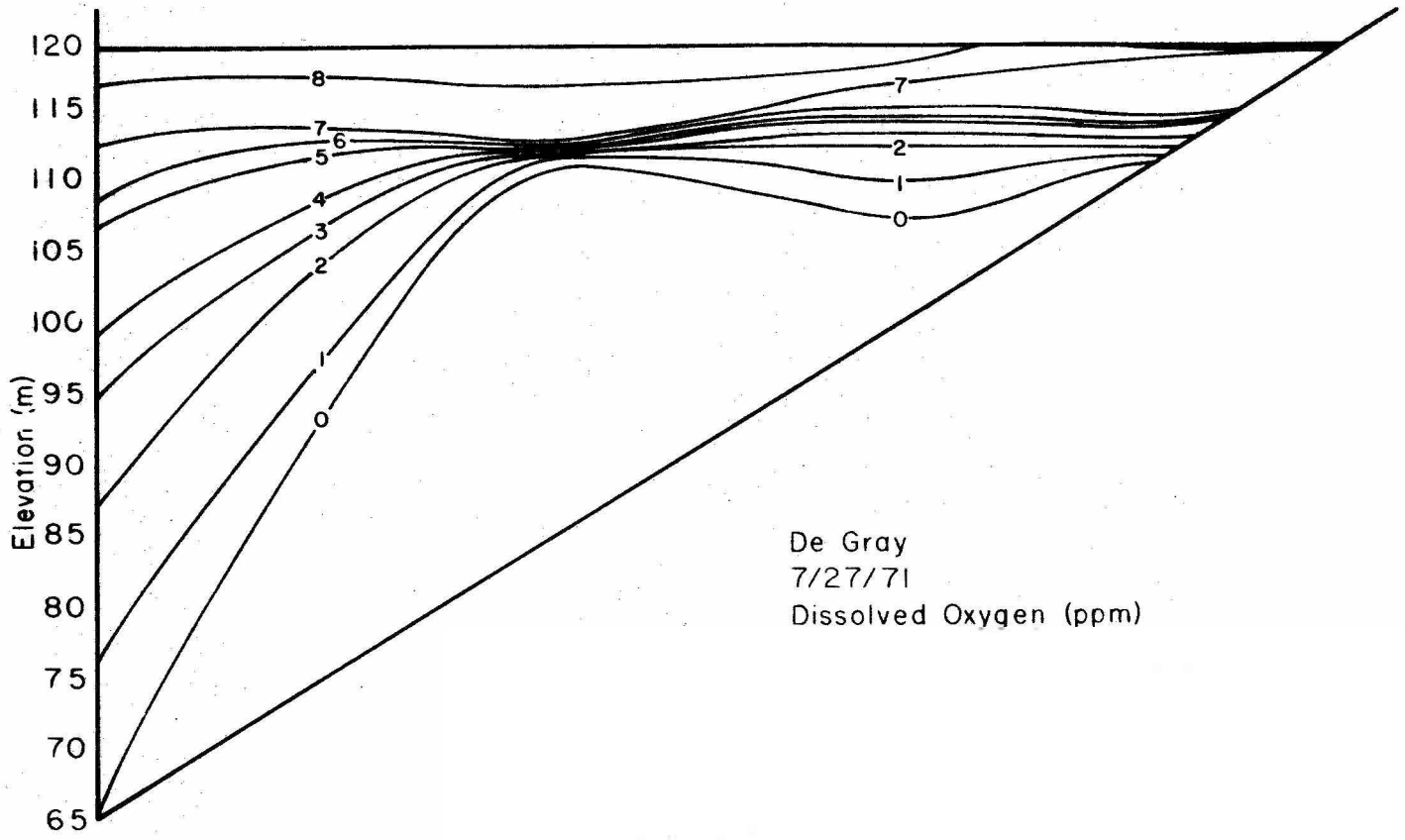
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
8
7
7
6
5
4
3
2
1
0
7
2
1
0
De Gray
7/27/71
Dissolved Oxygen (ppm)

Figure 31

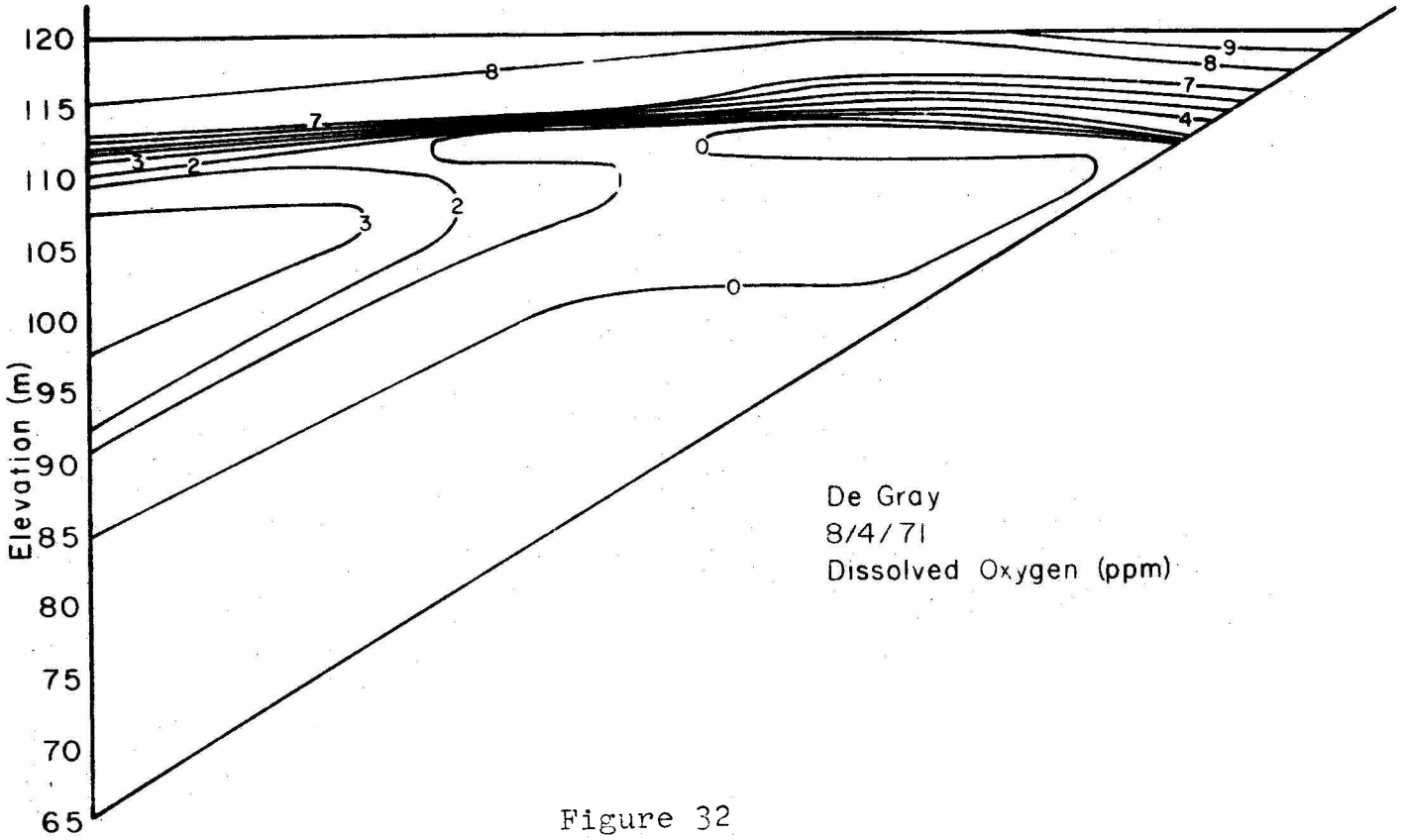
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
9
8
7
4
0
8
7
3
2
3
2
1
0
De Gray
8/4/71
Dissolved Oxygen (ppm)

Figure 32

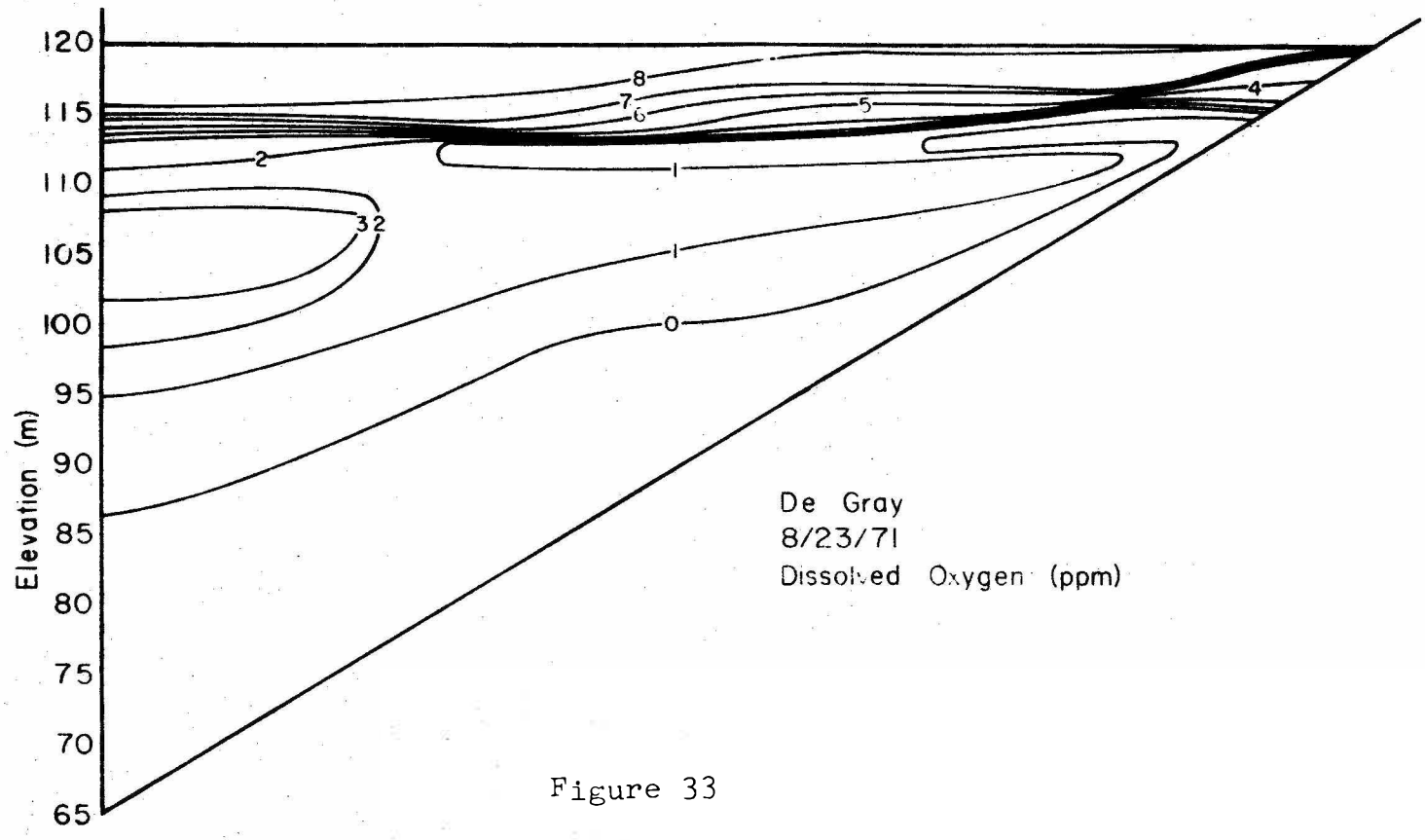
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
8
7
6
5
4
2
1
32
1
0
De Gray
8/23/71
Dissolved Oxygen (ppm)

Figure 33

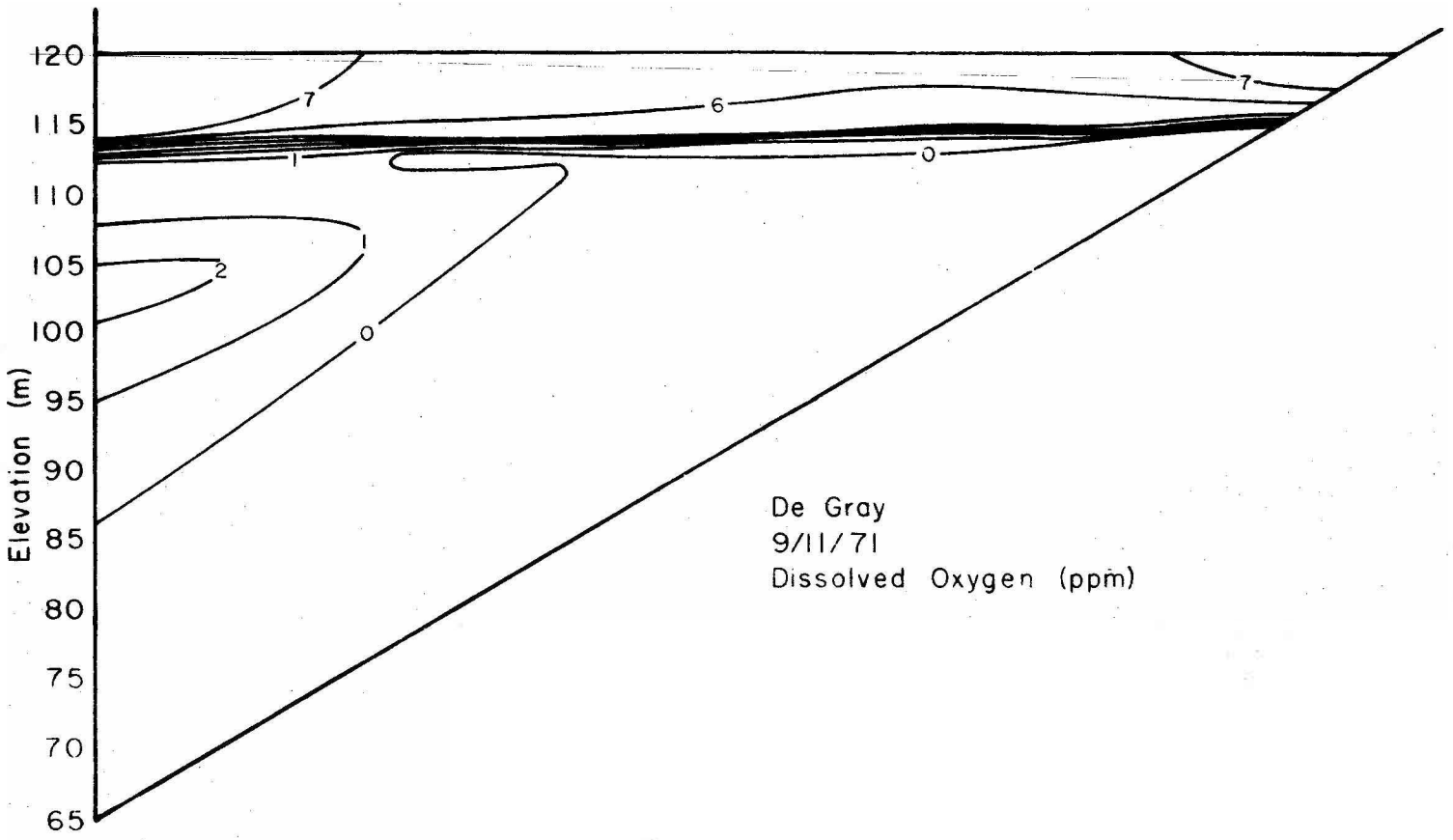
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
7
6
7
1
0
1
2
0
De Gray
9/11/71
Dissolved Oxygen (ppm)

Figure 34

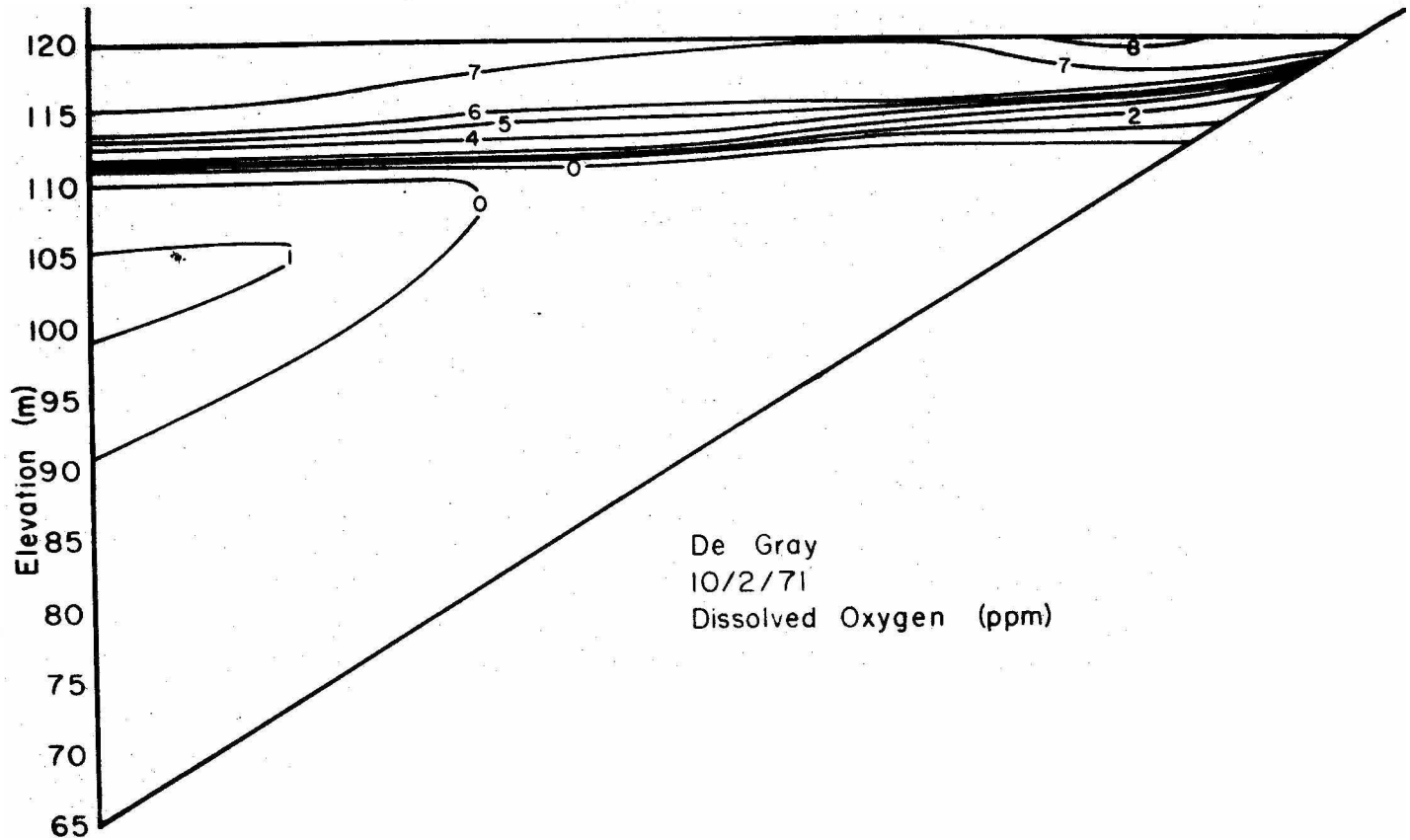
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
8
7
7
6
5
4
2
0
0
1
De Gray
10/2/71
Dissolved Oxygen (ppm)

Figure 35

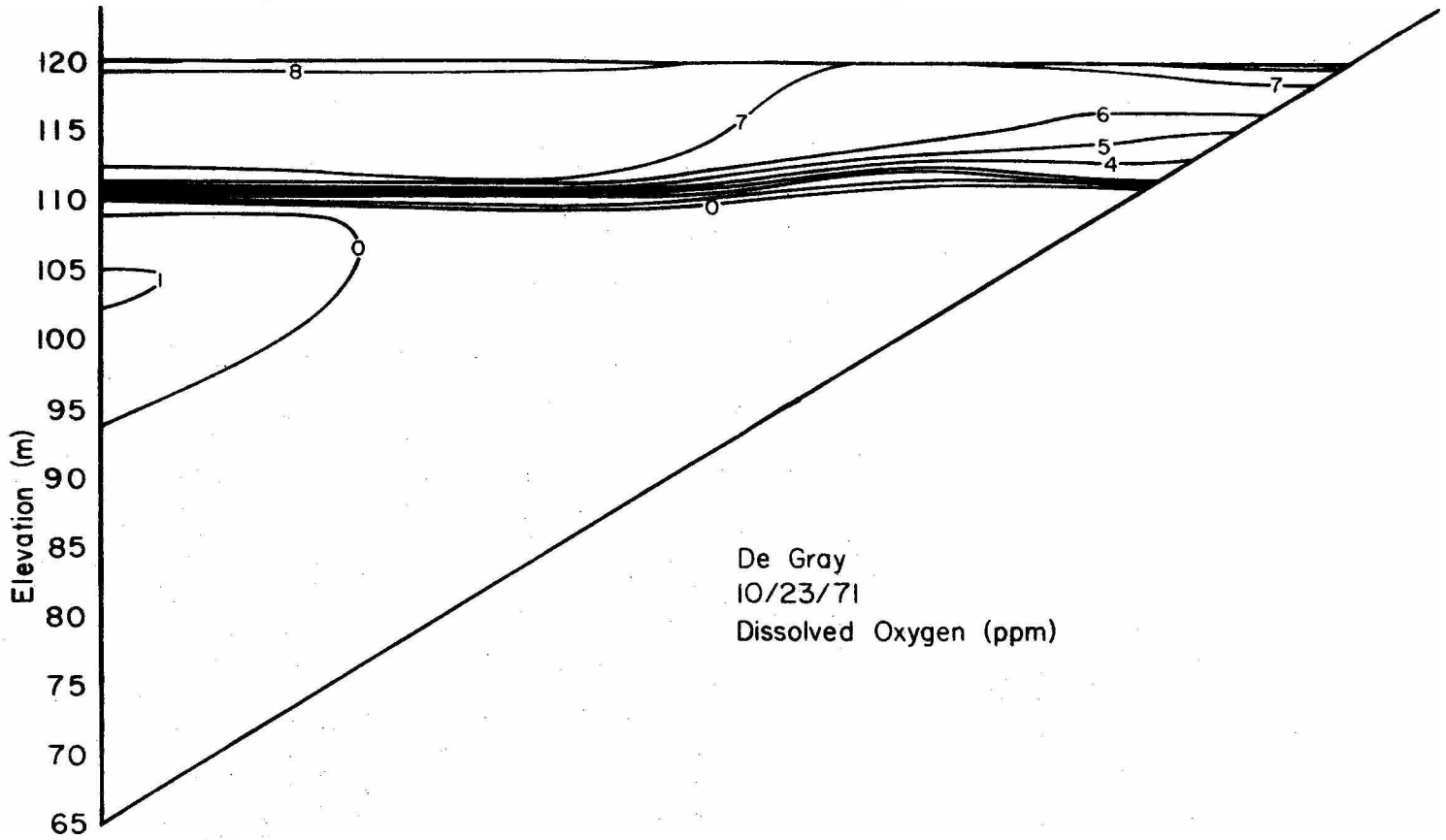
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
8
7
7
6
5
4
0
0
1
De Gray
10/23/71
Dissolved Oxygen (ppm)

Figure 36

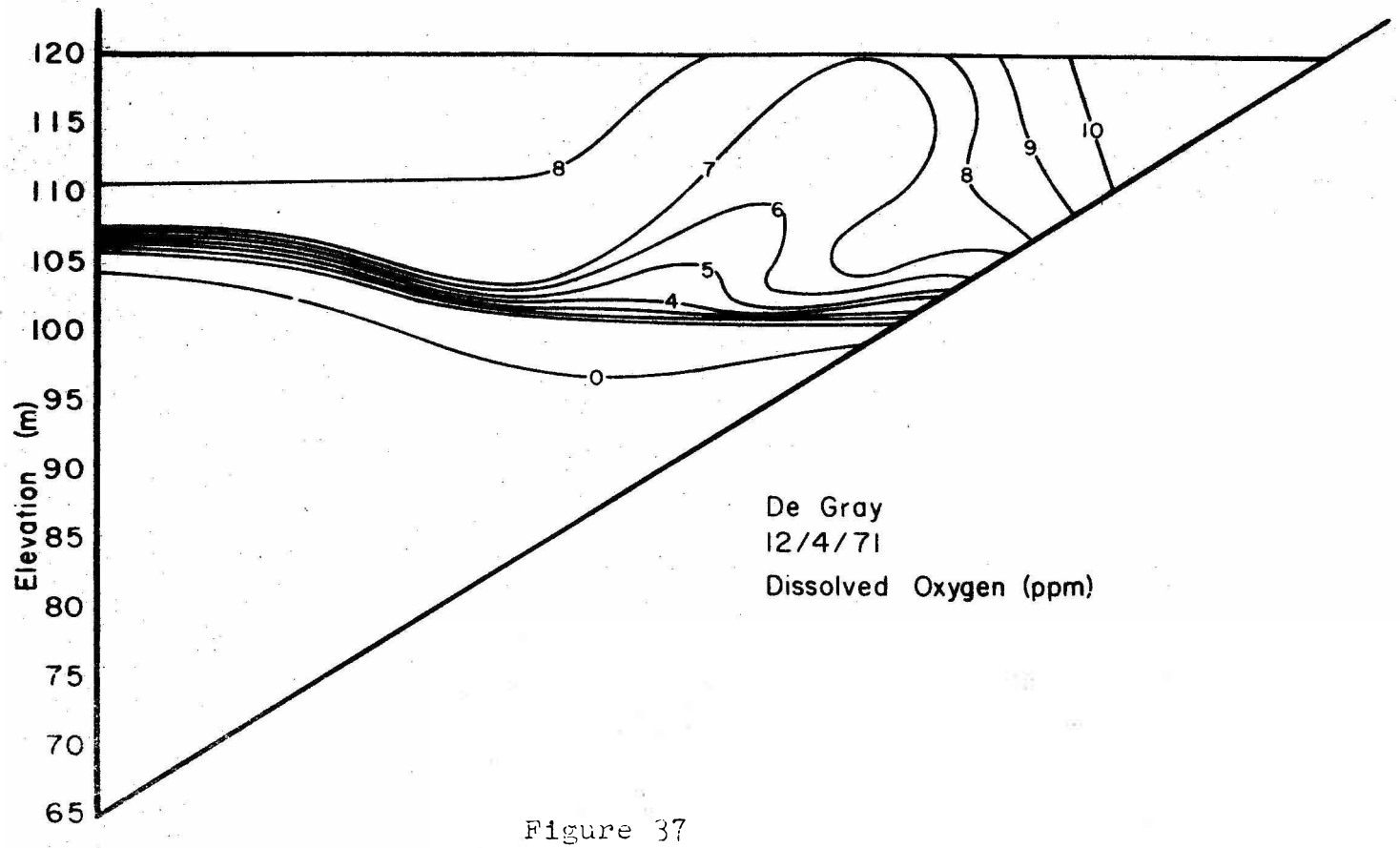
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
8
7
6
5
4
0
8
9
10
De Gray
12/4/71
Dissolved Oxygen (ppm)

Figure 37

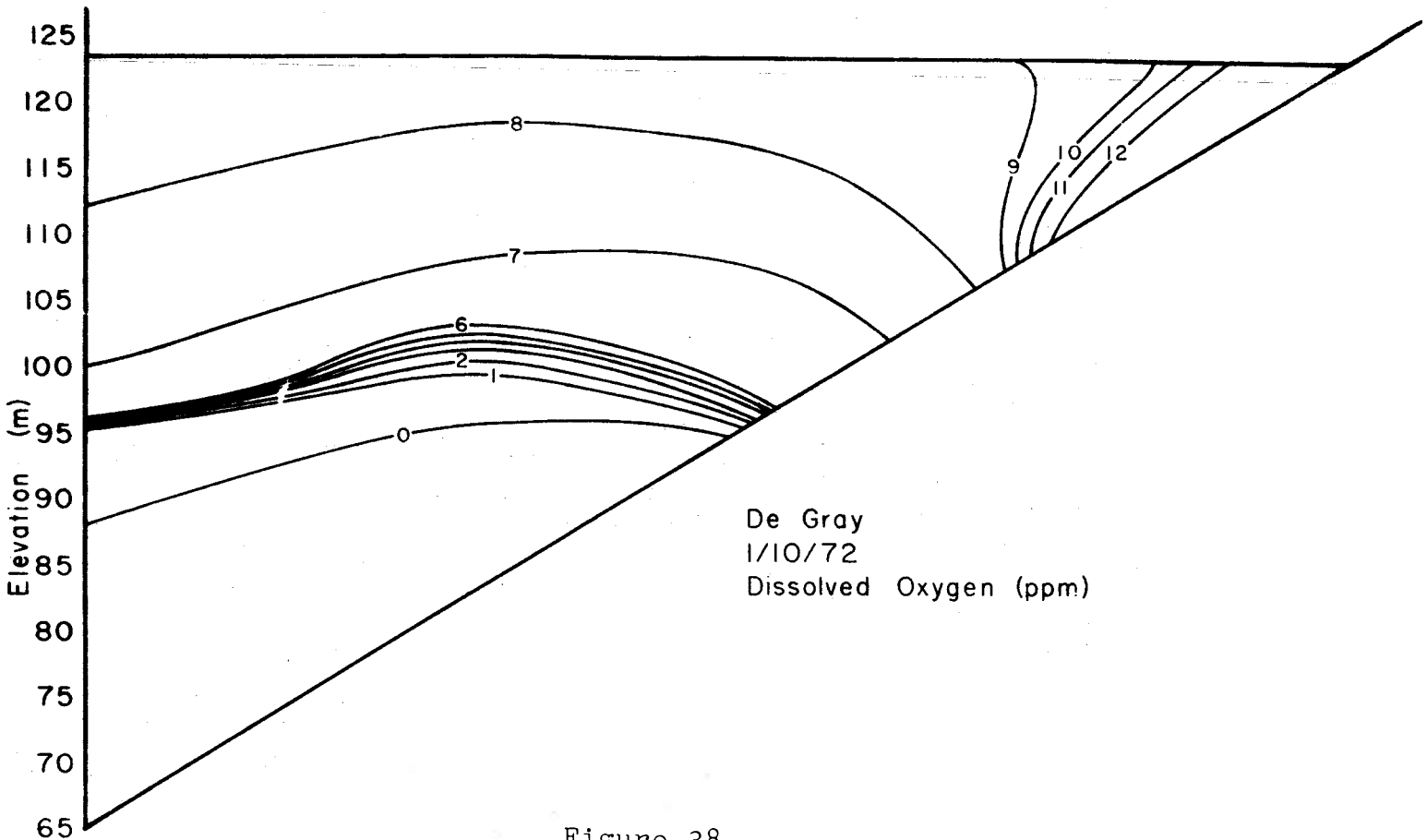
125
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
8
7
6
2
1
0
9
10
11
12
De Gray
1/10/72
Dissolved Oxygen (ppm)

Figure 38

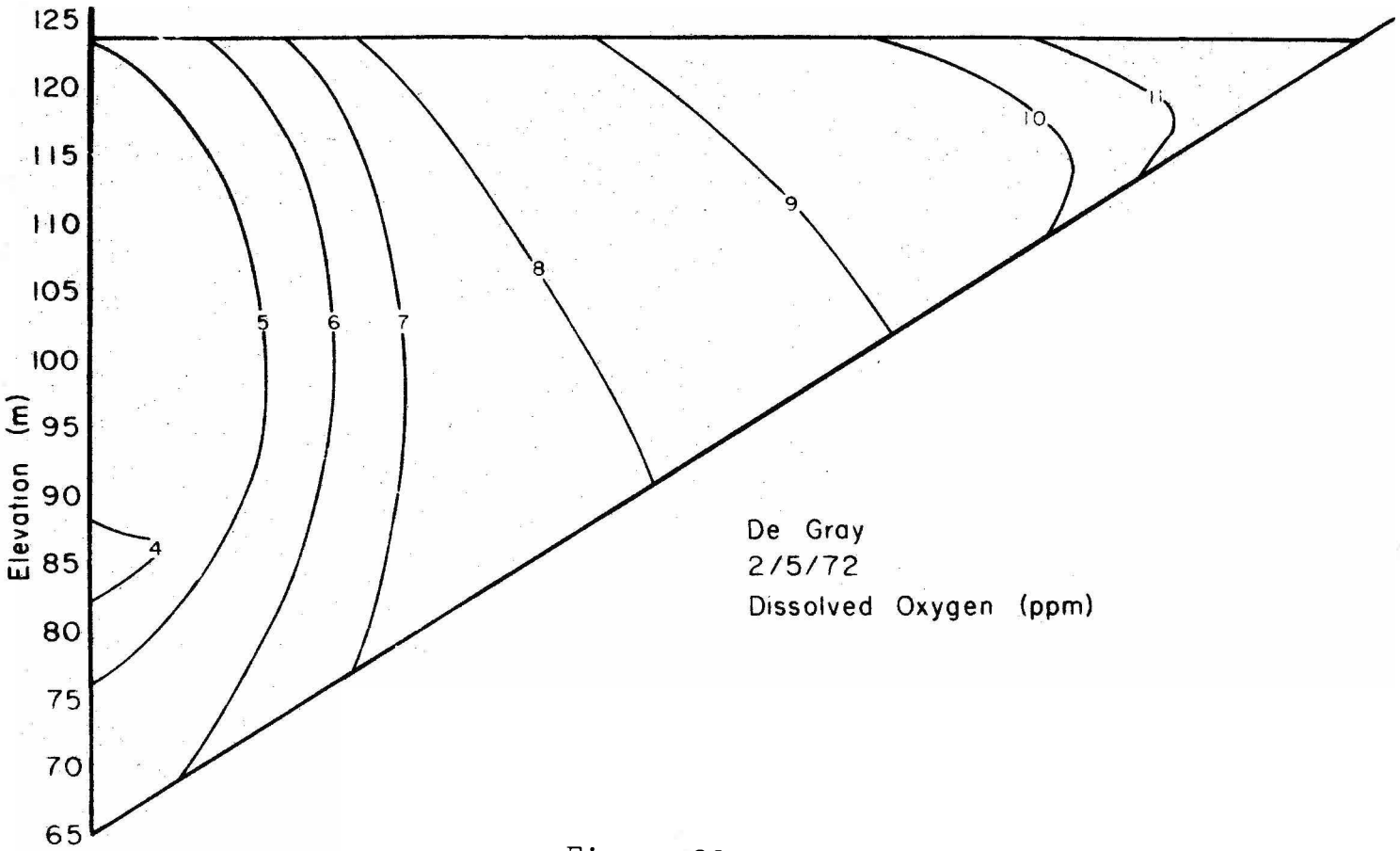
125
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
4
5
6
7
8
9
10
11
De Gray
2/5/72
Dissolved Oxygen (ppm)

Figure 39

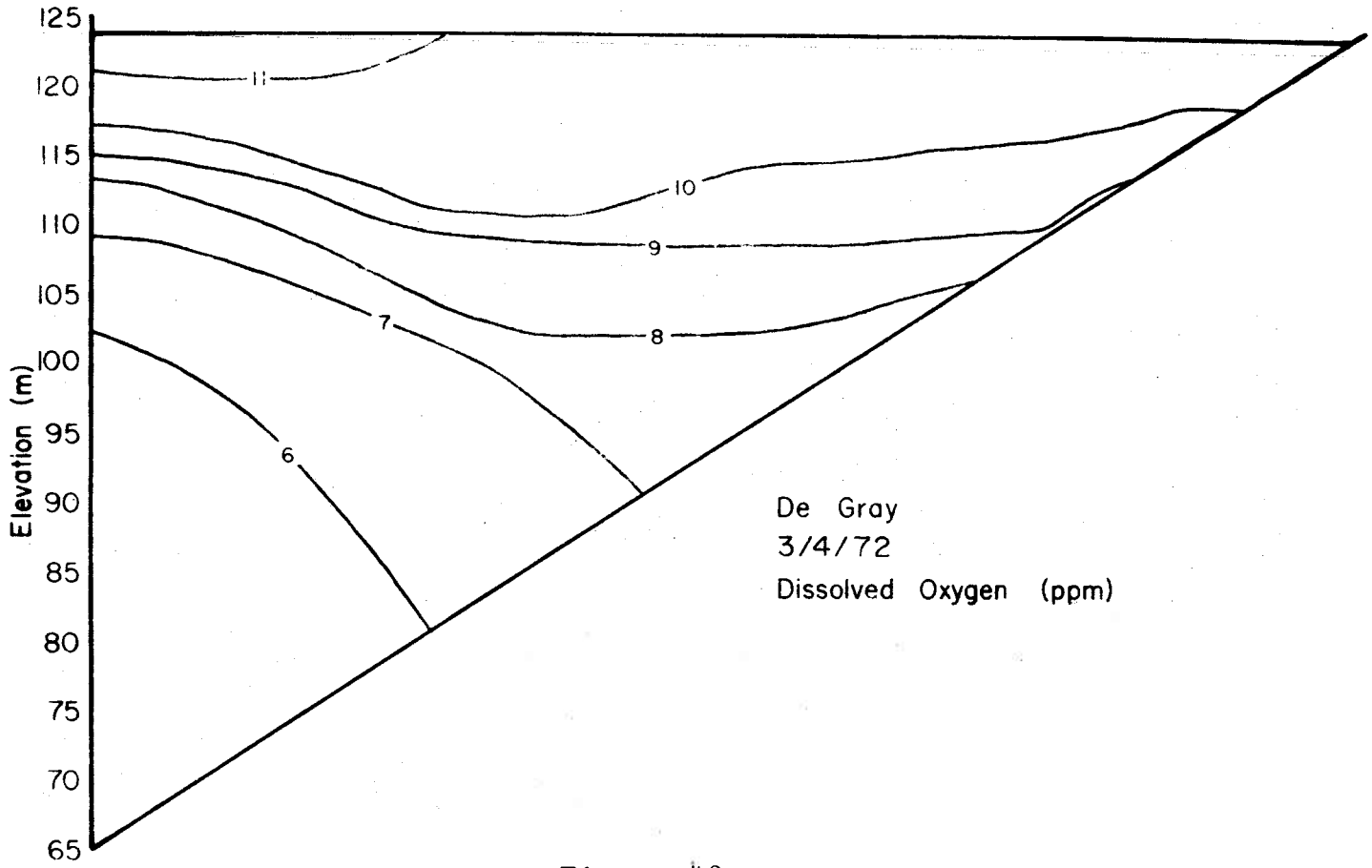
125
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
11
10
9
8
7
6
De Gray
3/4/72
Dissolved Oxygen (ppm)

Figure 40

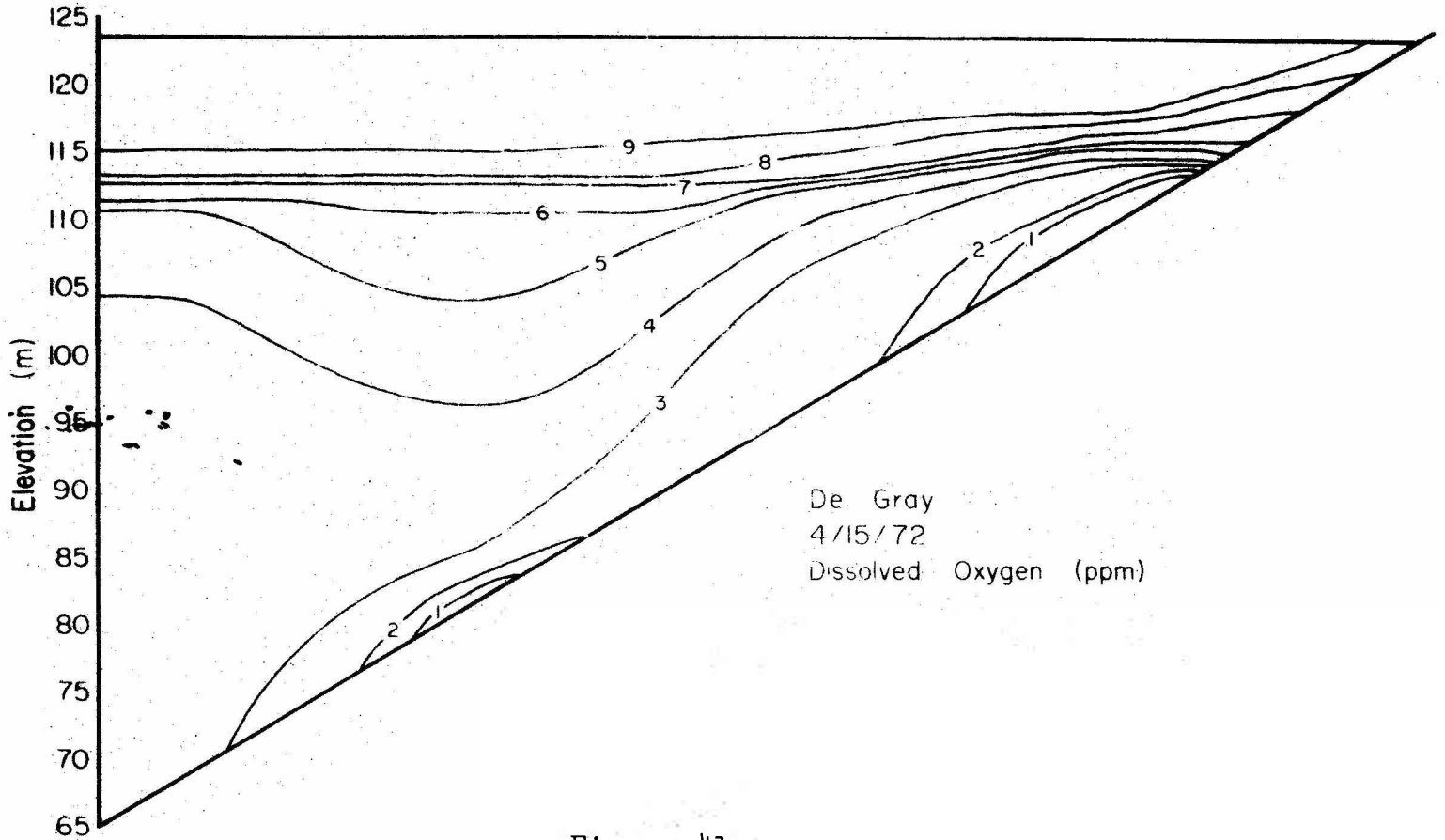
125
120
115
110
105
100
95
90
85
80
75
70
65
Elevation (m)
9
8
7
6
5
4
3
2
1
2
1
De Gray
4/15/72
Dissolved Oxygen (ppm)

Figure 41

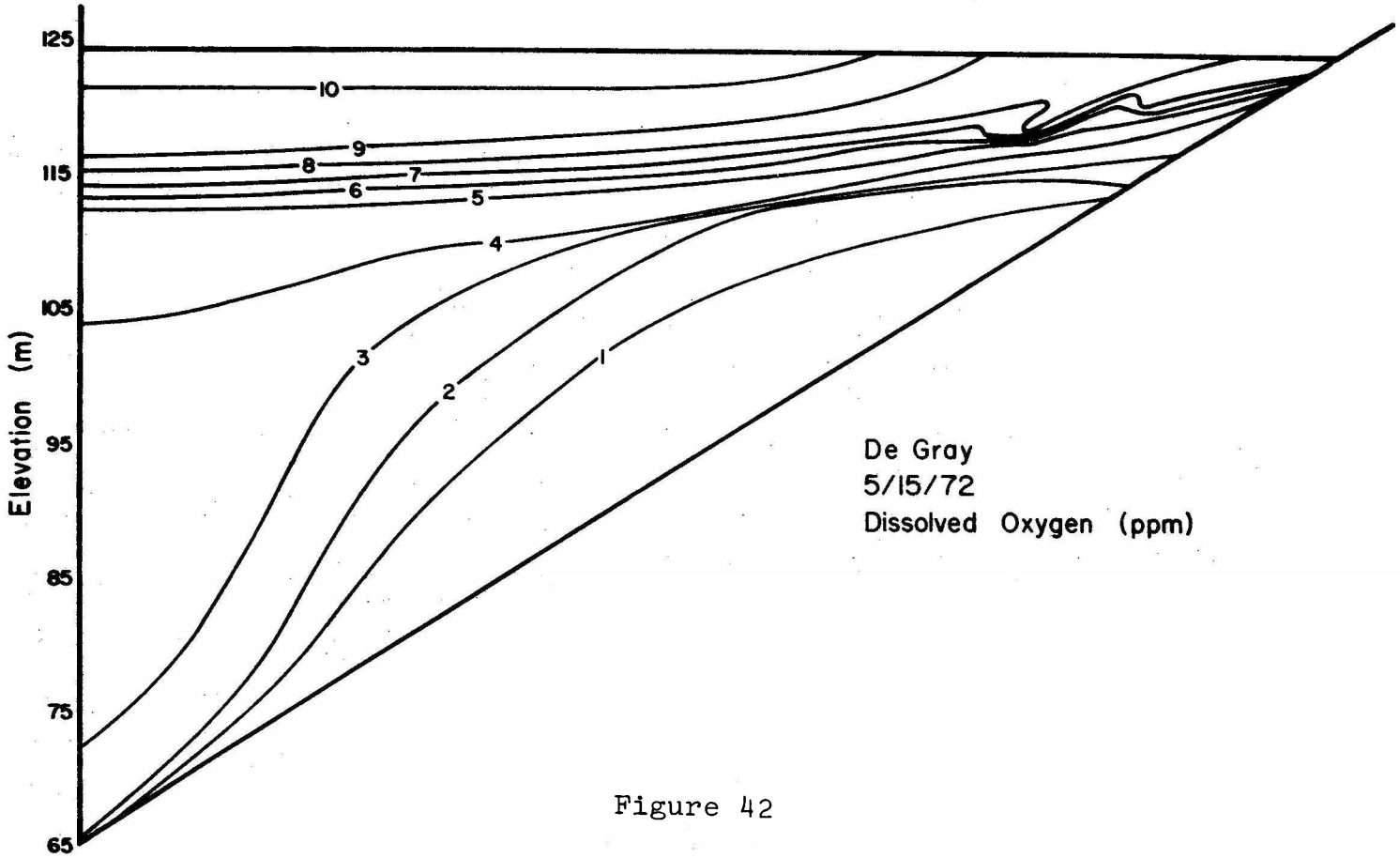
125
115
105
95
85
75
65
Elevation (m)
10
9
8
7
6
5
4
3
2
1
De Gray
5/15/72
Dissolved Oxygen (ppm)

Figure 42

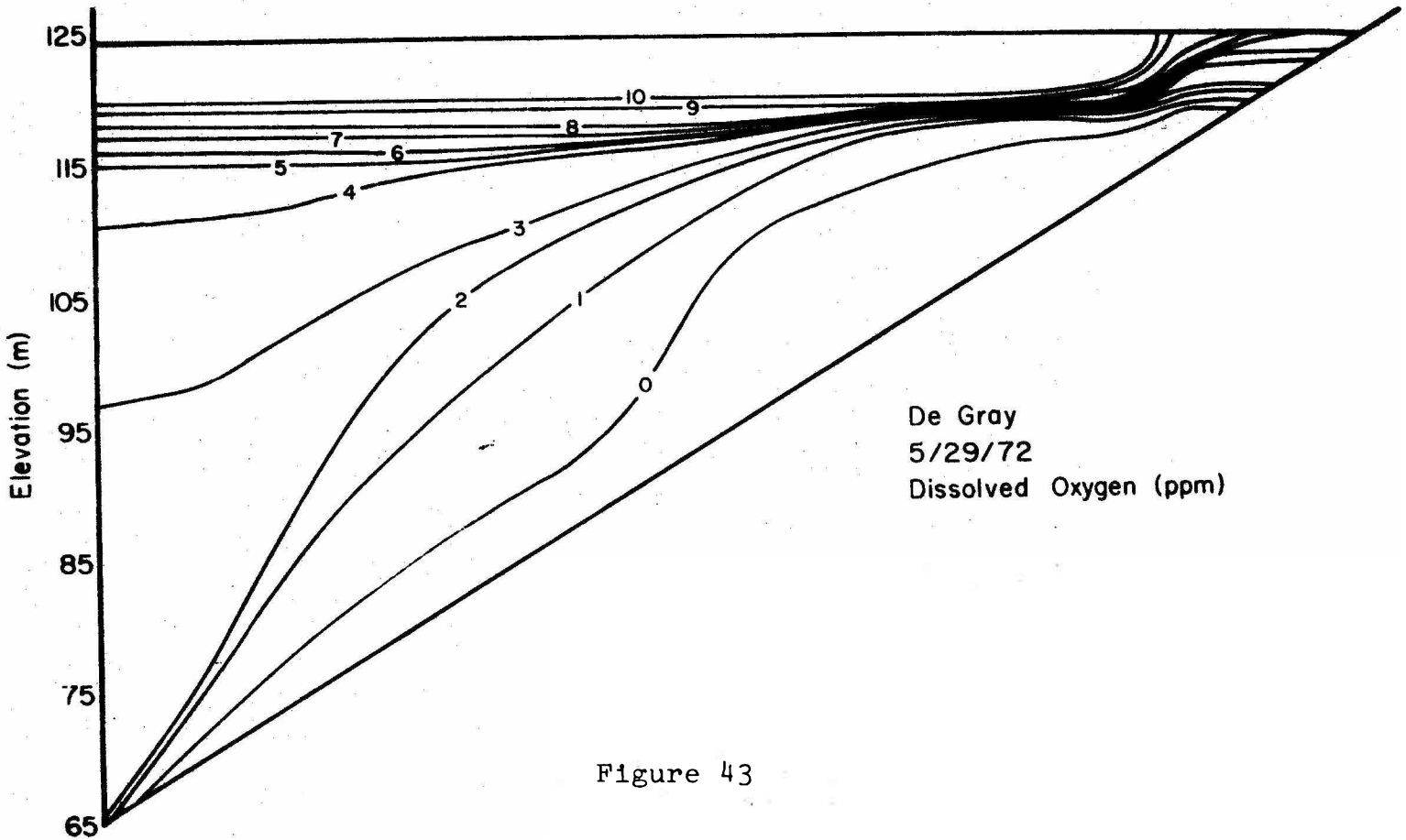
125
115
105
95
85
75
65
Elevation (m)
10
9
8
7
6
5
4
3
2
1
0
De Gray
5/29/72
Dissolved Oxygen (ppm)

Figure 43

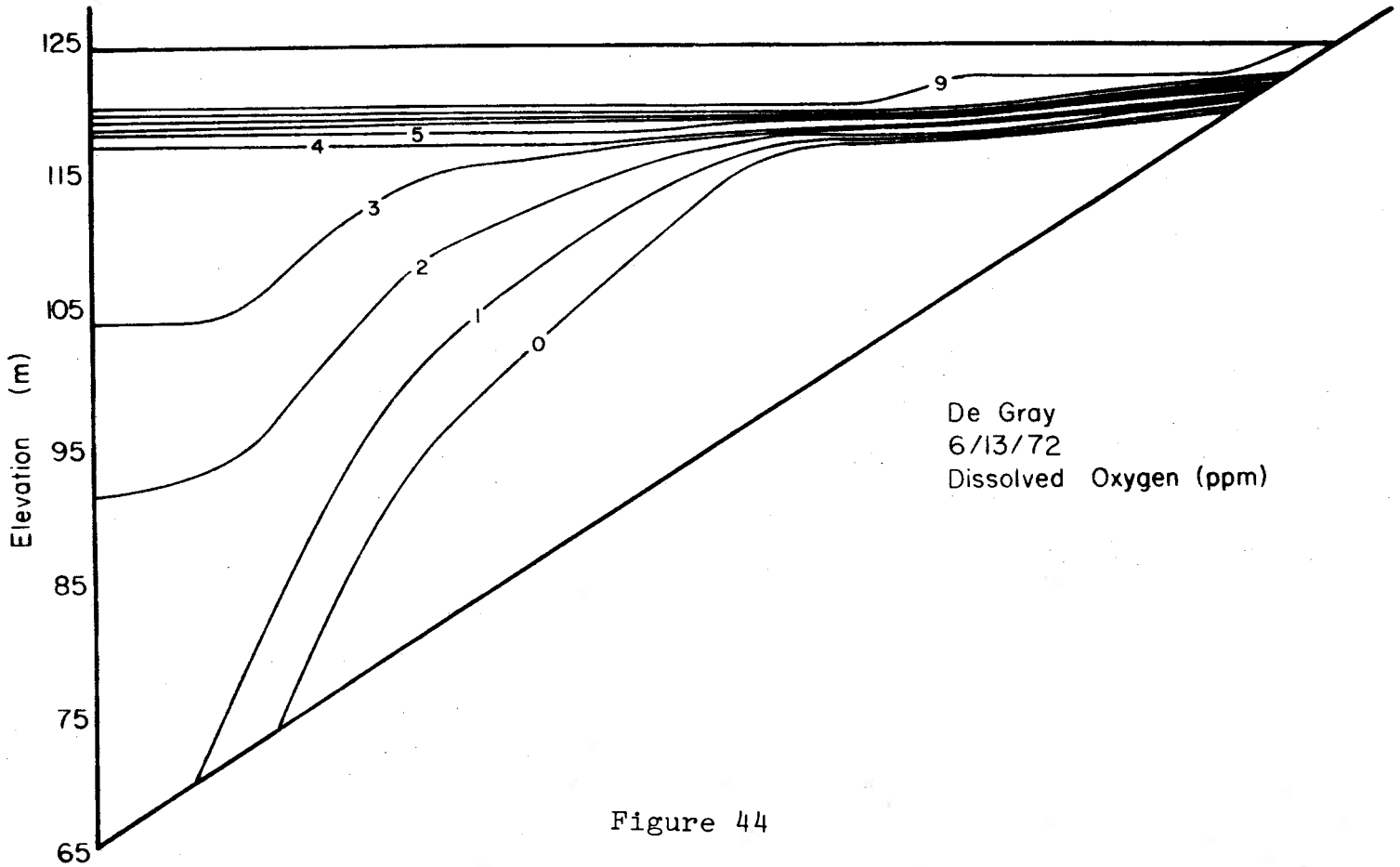
125
115
105
95
85
75
65
Elevation (m)
9
5
4
3
2
1
0
De Gray
6/13/72
Dissolved Oxygen (ppm)

Figure 44

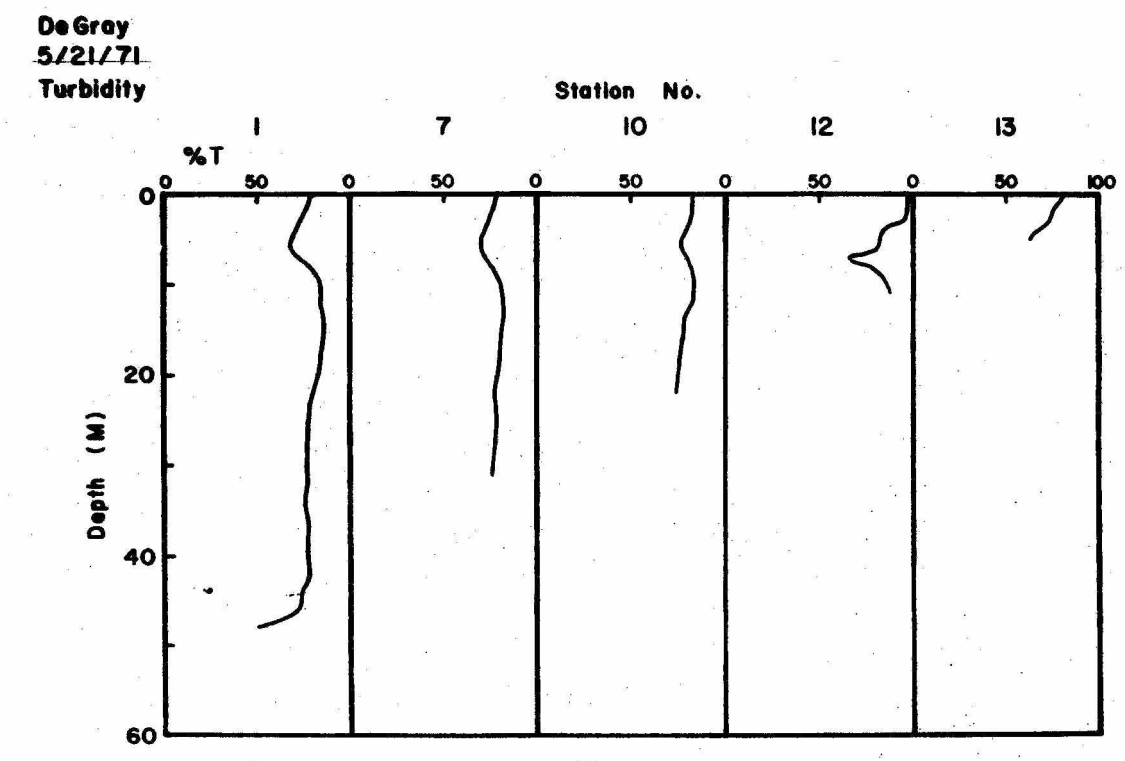
De Gray
5/21/71
Turbidity
Station No.
1
7
10
12
13
%T
0
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 45

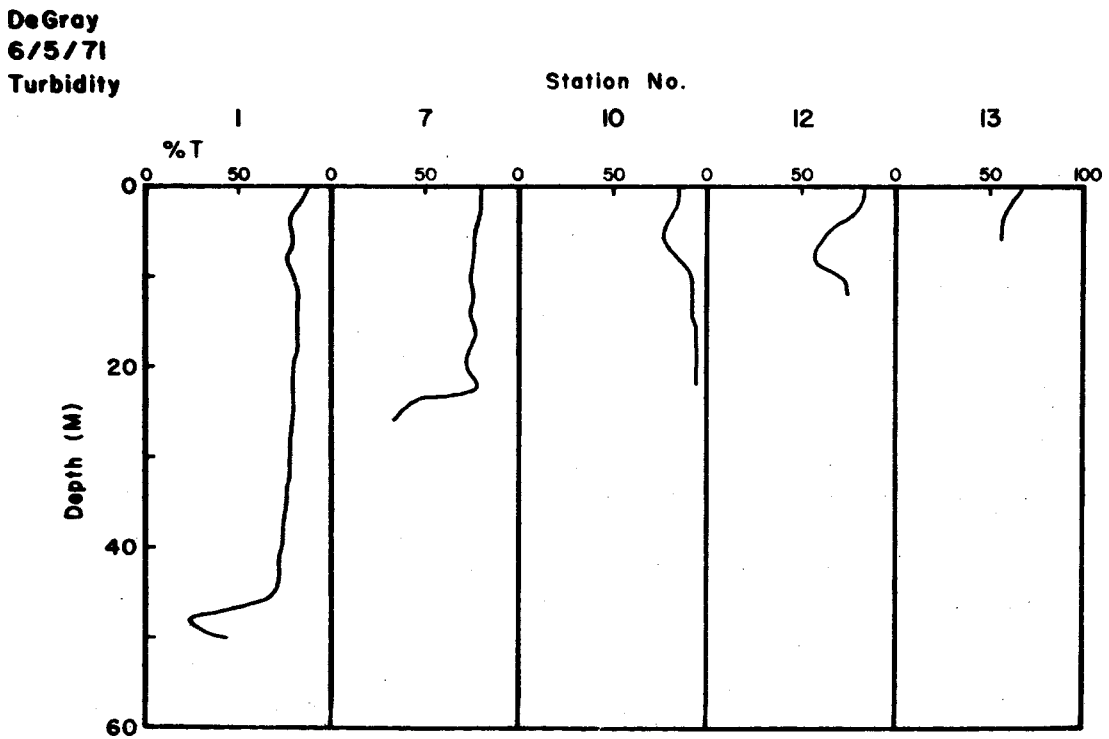
DeGray
6/5/71
Turbidity
Station No.
1
7
10
12
13
%T
0
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 46

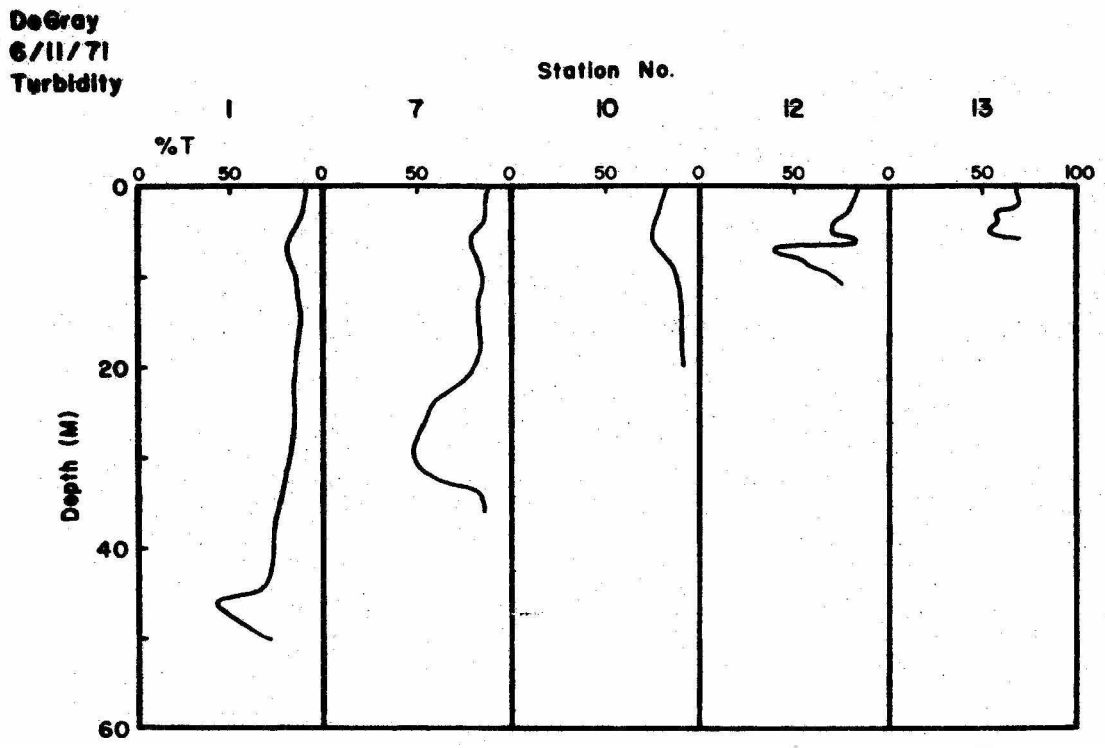
DeGray
6/11/71
Turbidity
Station No.
1
7
10
12
13
%T
0
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 47

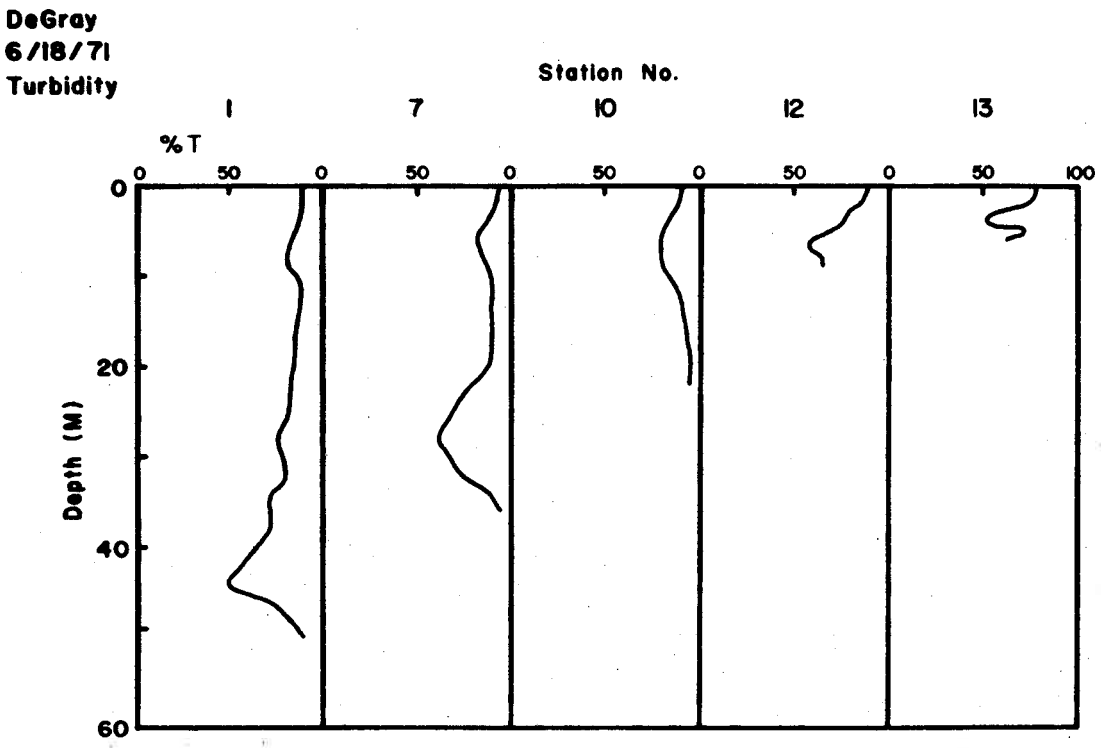
DeGray
6/18/71
Turbidity
Station No.
1
7
10
12
13
%T
0
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 48

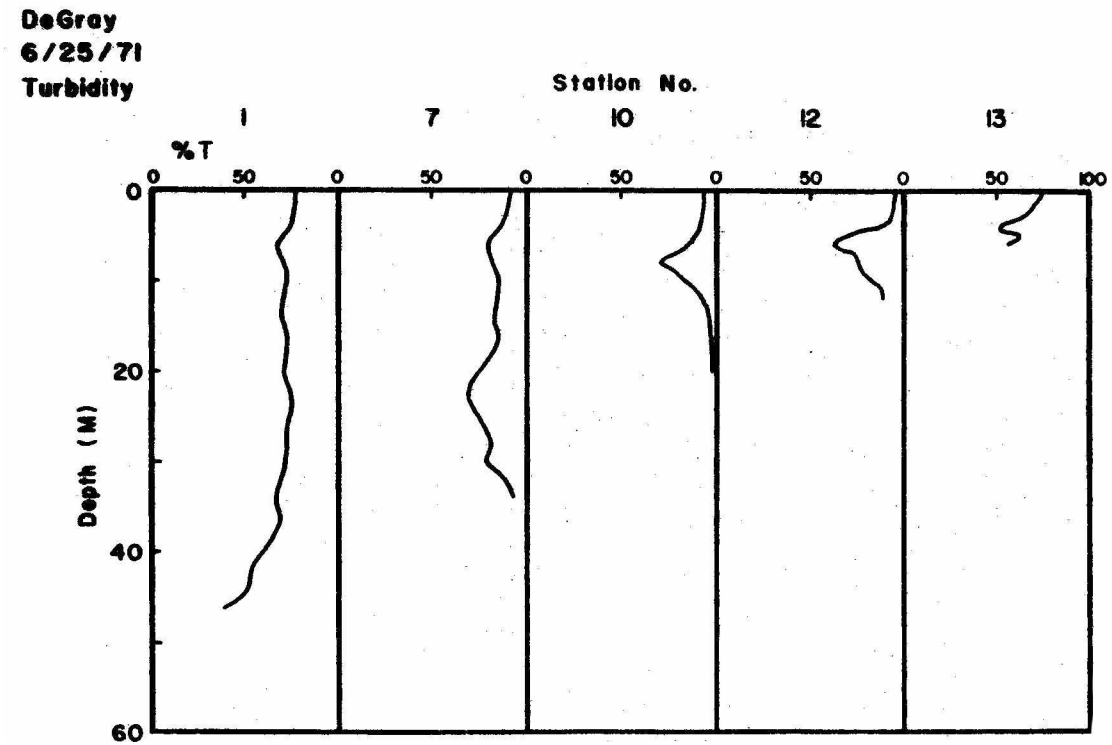
DeGray
6/25/71
Turbidity
Station No.
1
7
10
12
13
%T
0
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 49

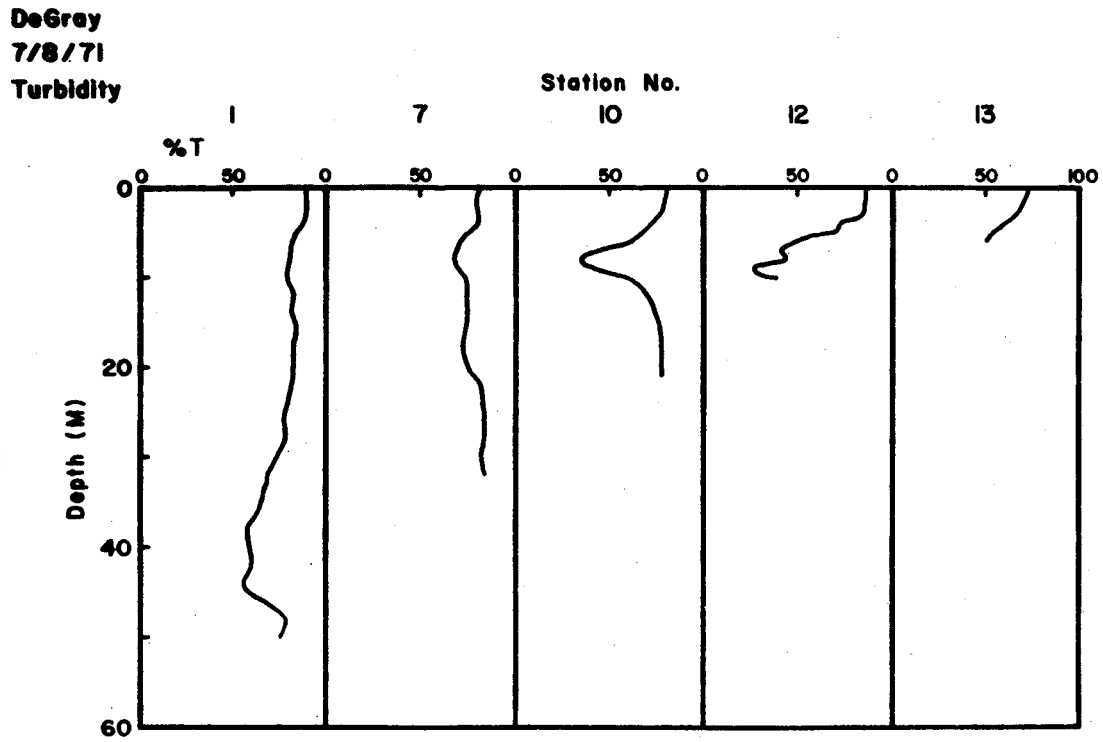
DeGray
7/8/71
Turbidity
Station No.
1
7
10
12
13
%T
0
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 50

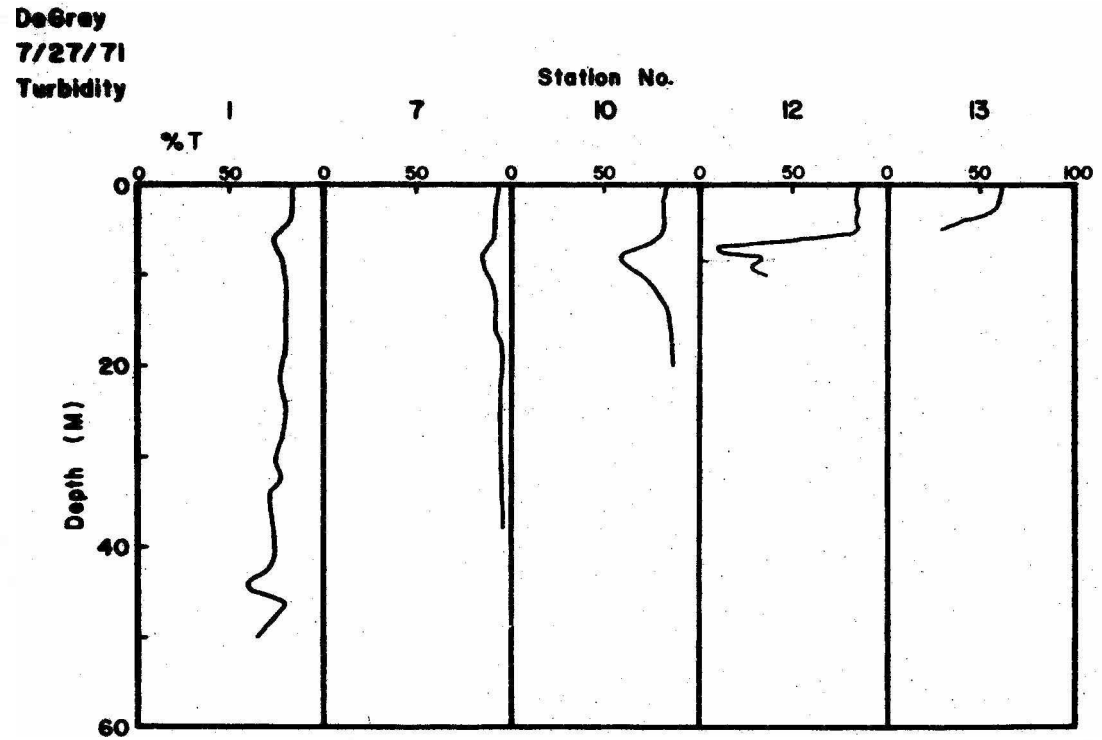
DeGray
7/27/71
Turbidity
Station No.
1
7
10
12
13
%T
0
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 51

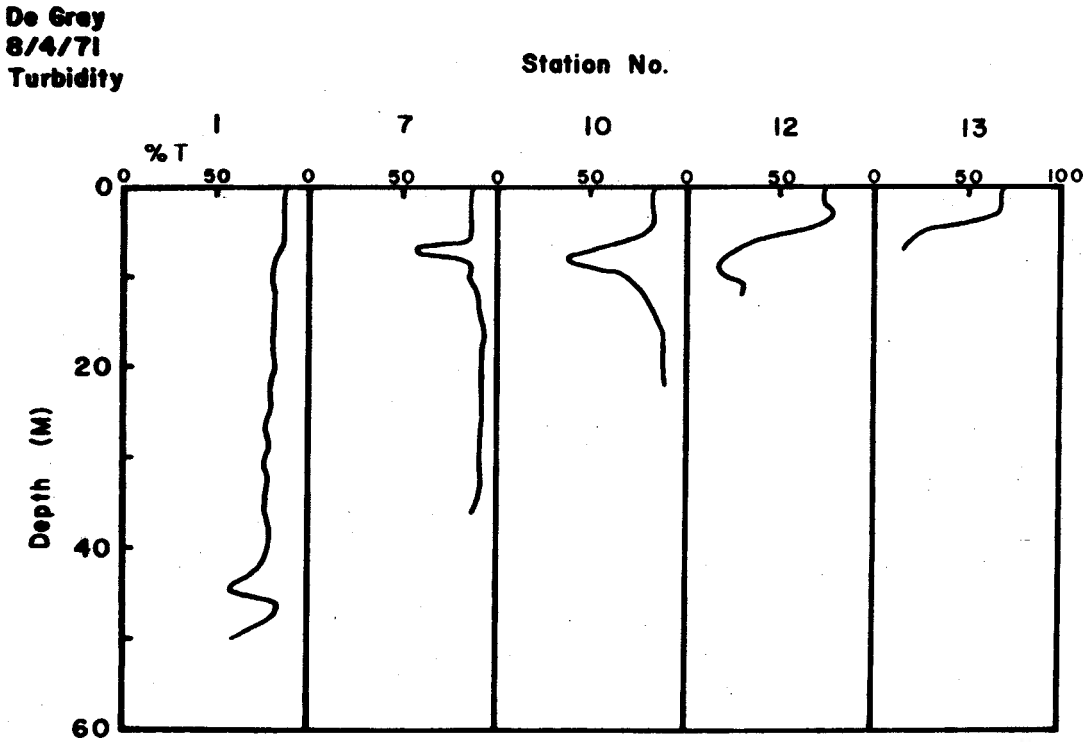
De Gray
8/4/71
Turbidity
Station No.
1
7
10
12
13
%T
0
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 52

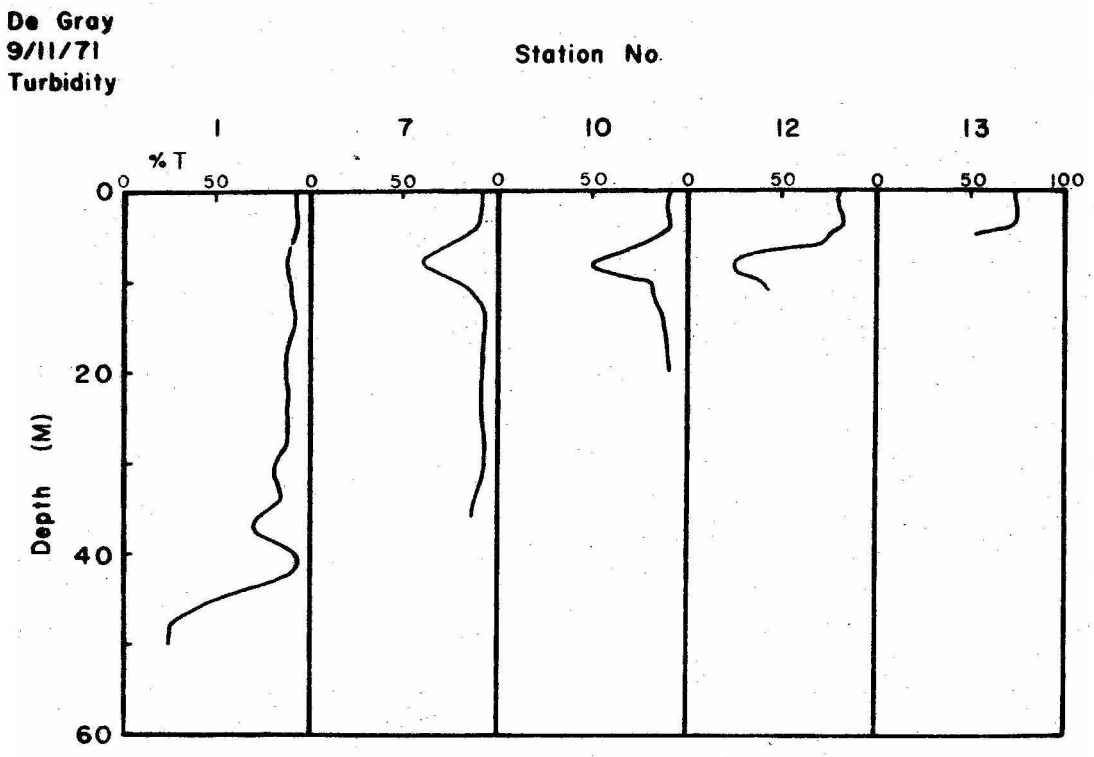
De Gray
9/11/71
Turbidity
Station No.
1
7
10
12
13
%T
0
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 53

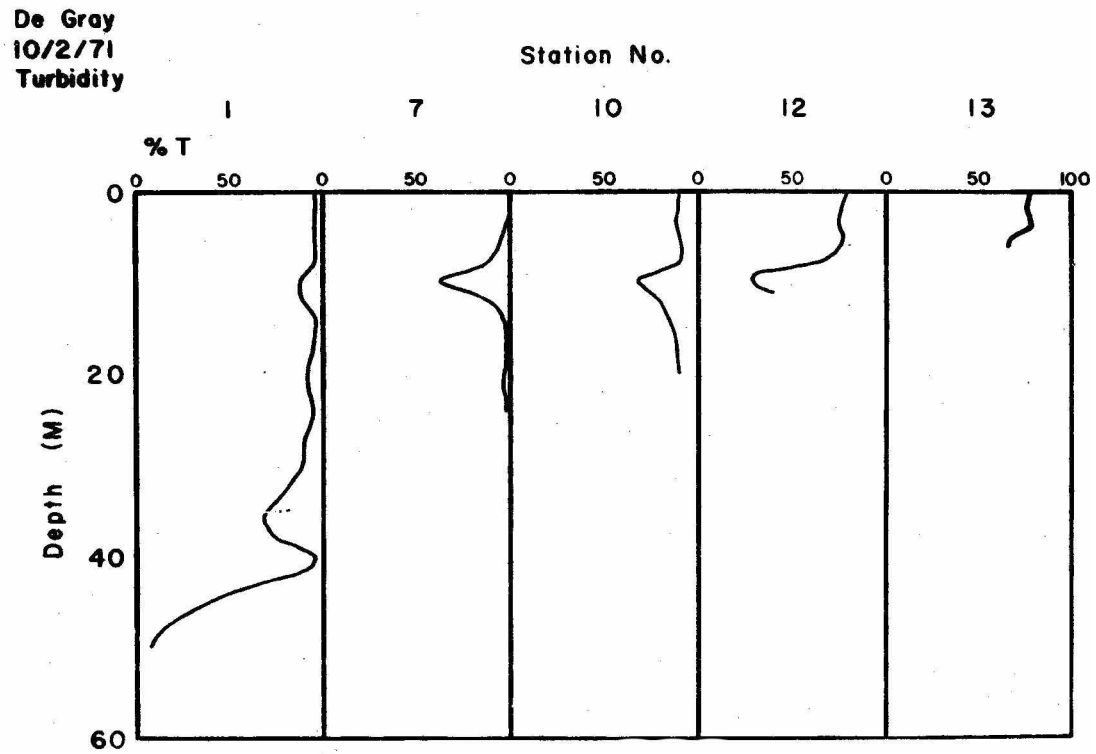
De Gray
10/2/71
Turbidity
Station No.
1
7
10
12
13
%T
0
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 54

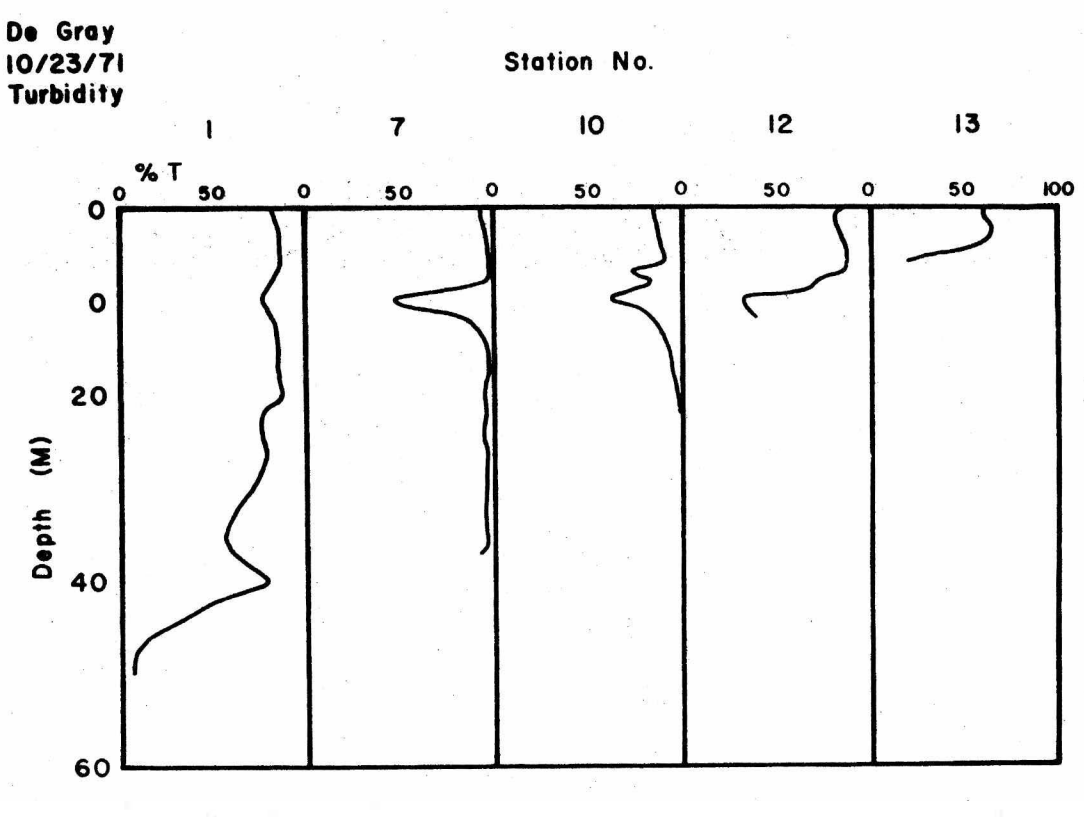
De Gray
10/23/71
Turbidity
Station No.
1
7
10
12
13
% T
0
50
0
50
0
50
0
50
0
50
100
0
0
20
40
60
Depth (M)

Figure 55

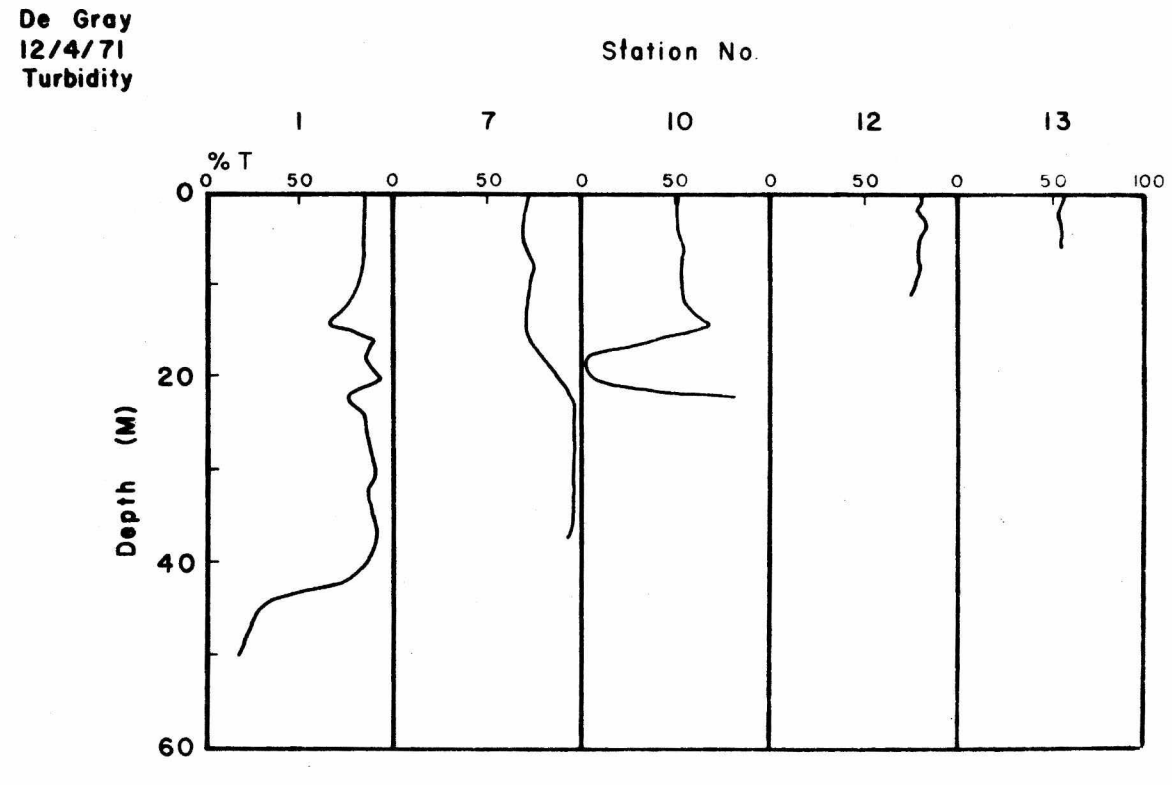
De Gray
12/4/71
Turbidity
Station No.
1
7
10
12
13
% T
0
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 56

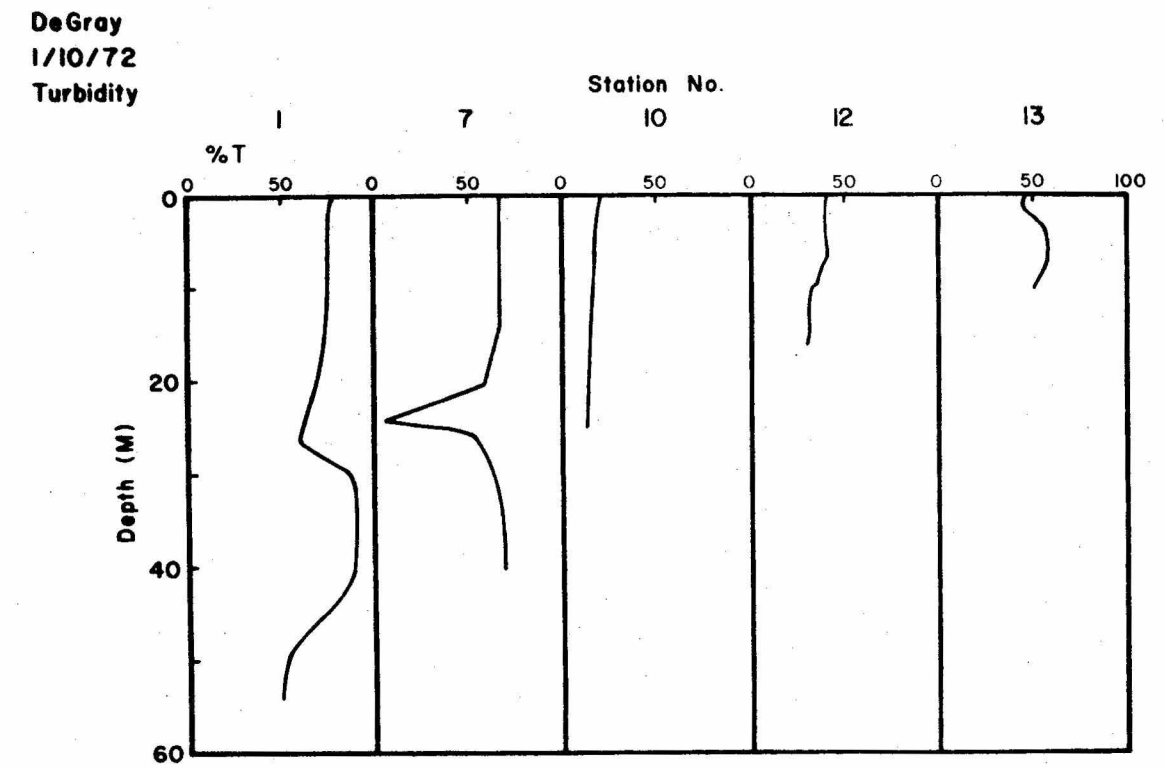
DeGray
1/10/72
Turbidity
Station No.
1
7
10
12
13
%T
0
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 57

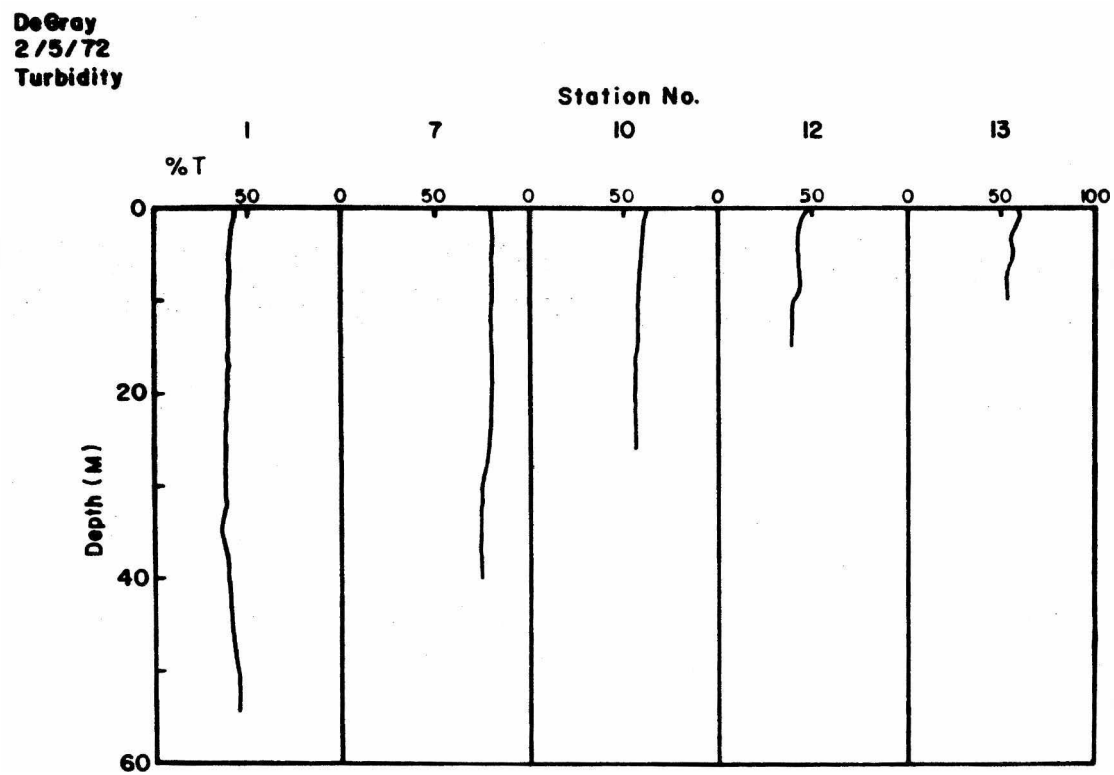
DeGray
2/5/72
Turbidity
Station No.
1
7
10
12
13
%T
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 58

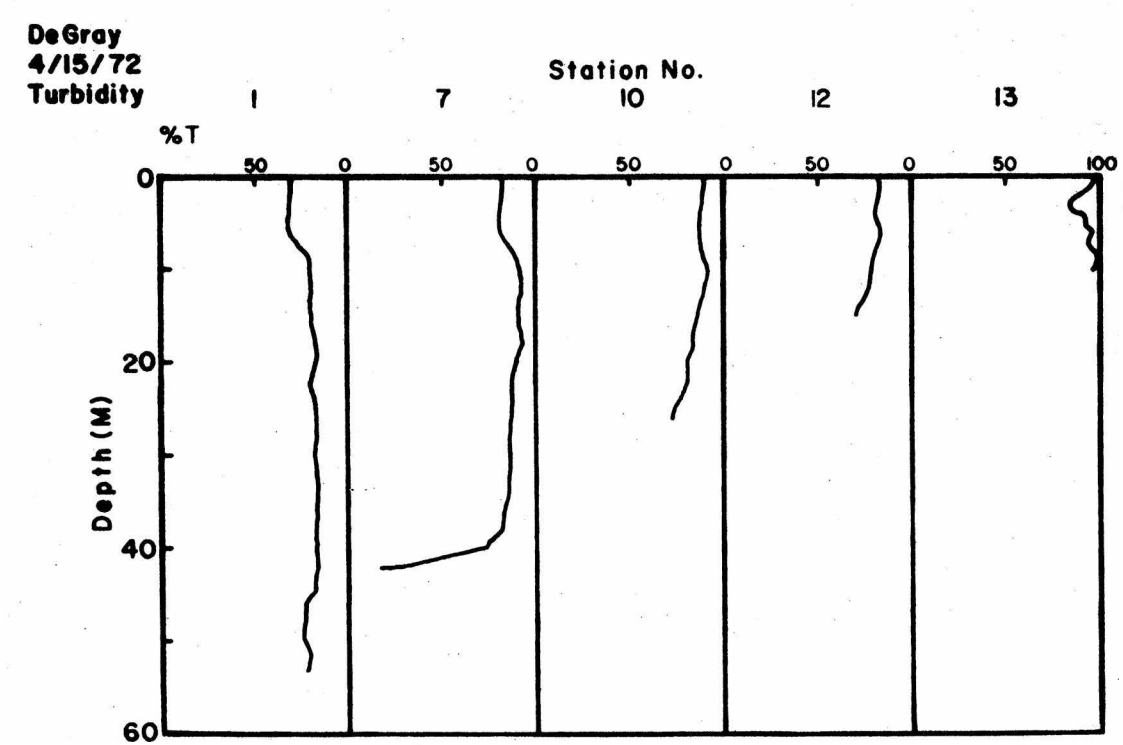
DeGray
4/15/72
Turbidity
Station No.
1
7
10
12
13
%T
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 59

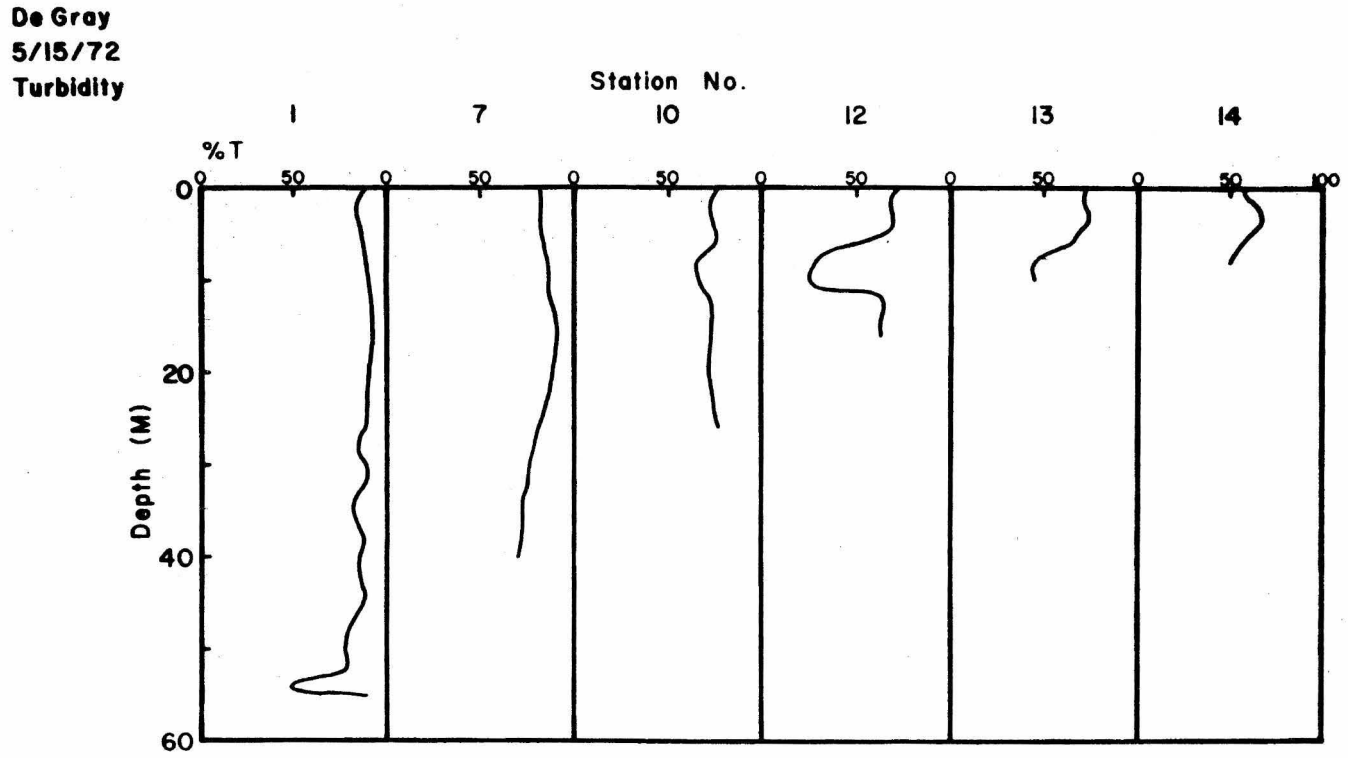
De Gray
5/15/72
Turbidity
Station No.
1
7
10
12
13
14
%T
0
50
100
Depth (M)
0
20
40
60

Figure 60

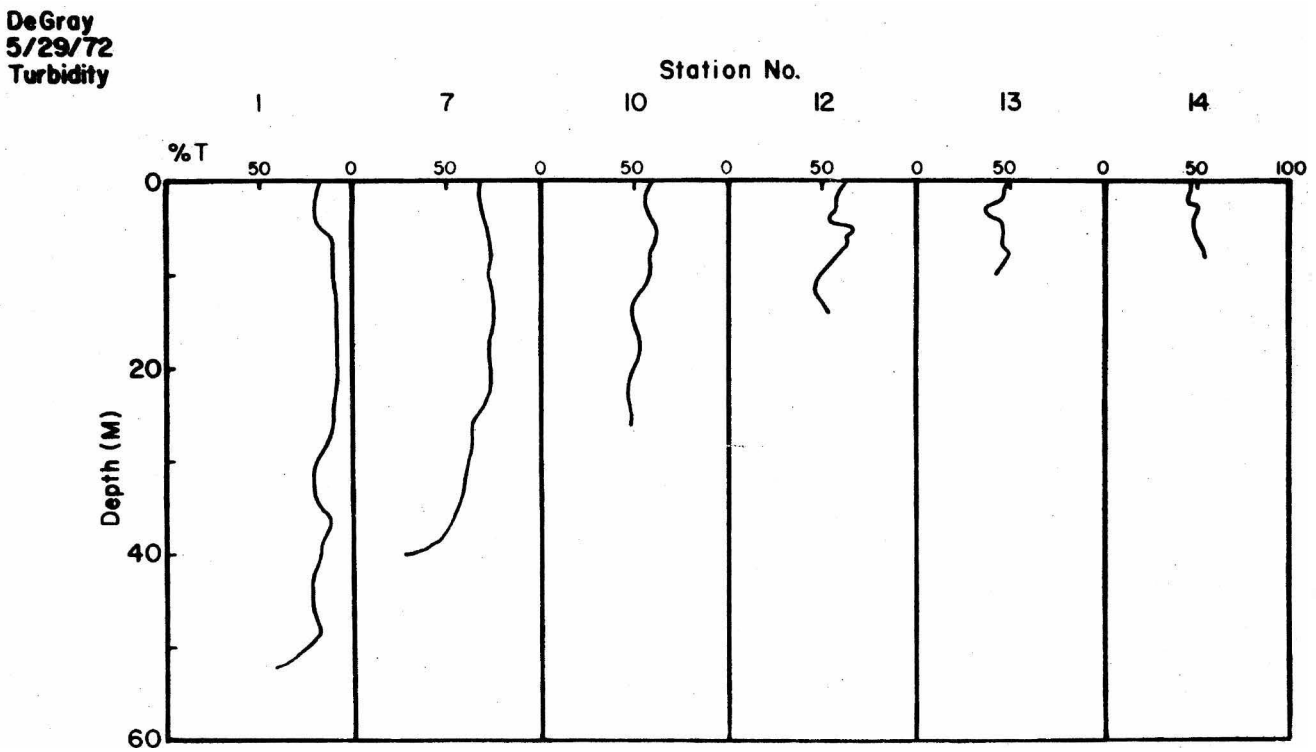
DeGray
5/29/72
Turbidity
Station No.
1
7
10
12
13
14
%T
50
0
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 61

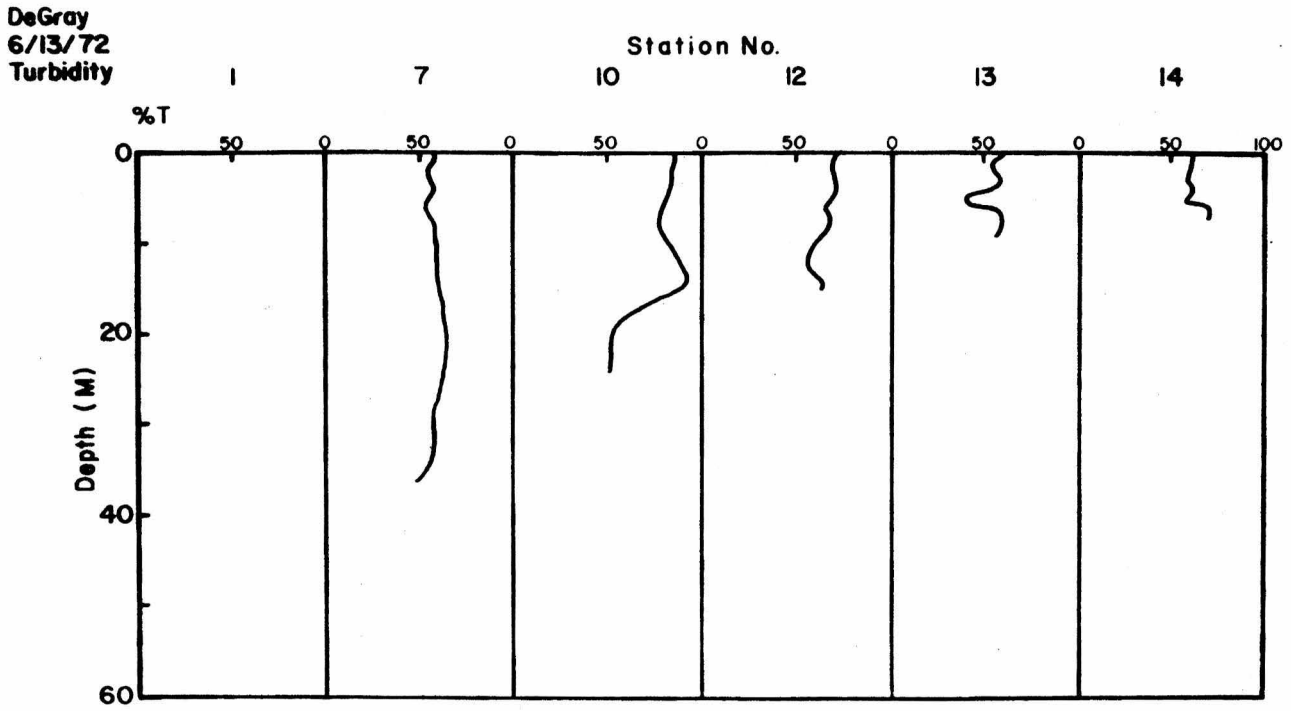
DeGray
6/13/72
Turbidity
Station No.
1
7
10
12
13
14
%T
0
50
0
50
0
50
0
50
0
50
0
50
100
0
20
40
60
Depth (M)

Figure 62

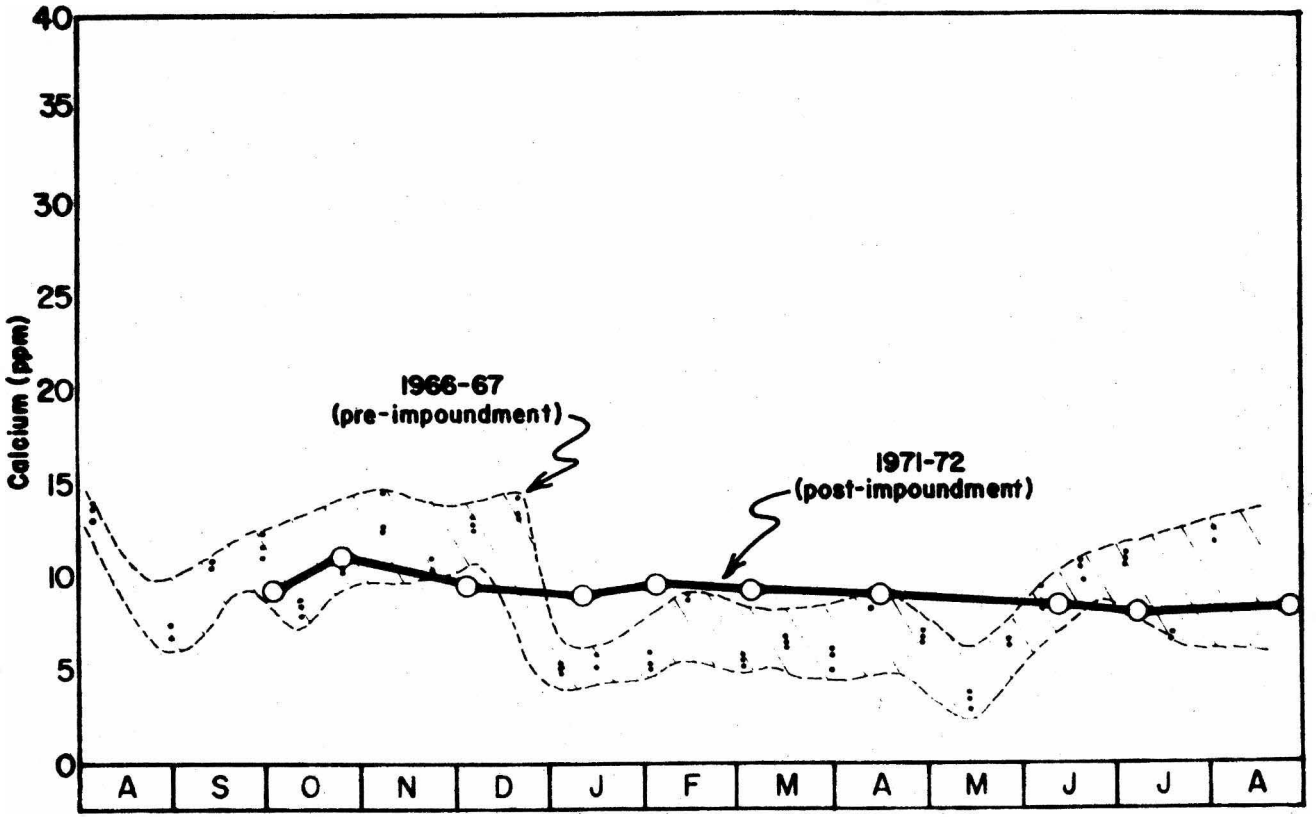
40
35
30
25
20
15
10
5
0
Calcium (ppm)
1966-67
(pre-impoundment)
1971-72
(post-impoundment)
A
S
O
N
D
J
F
M
A
M
J
J
A

Figure 63

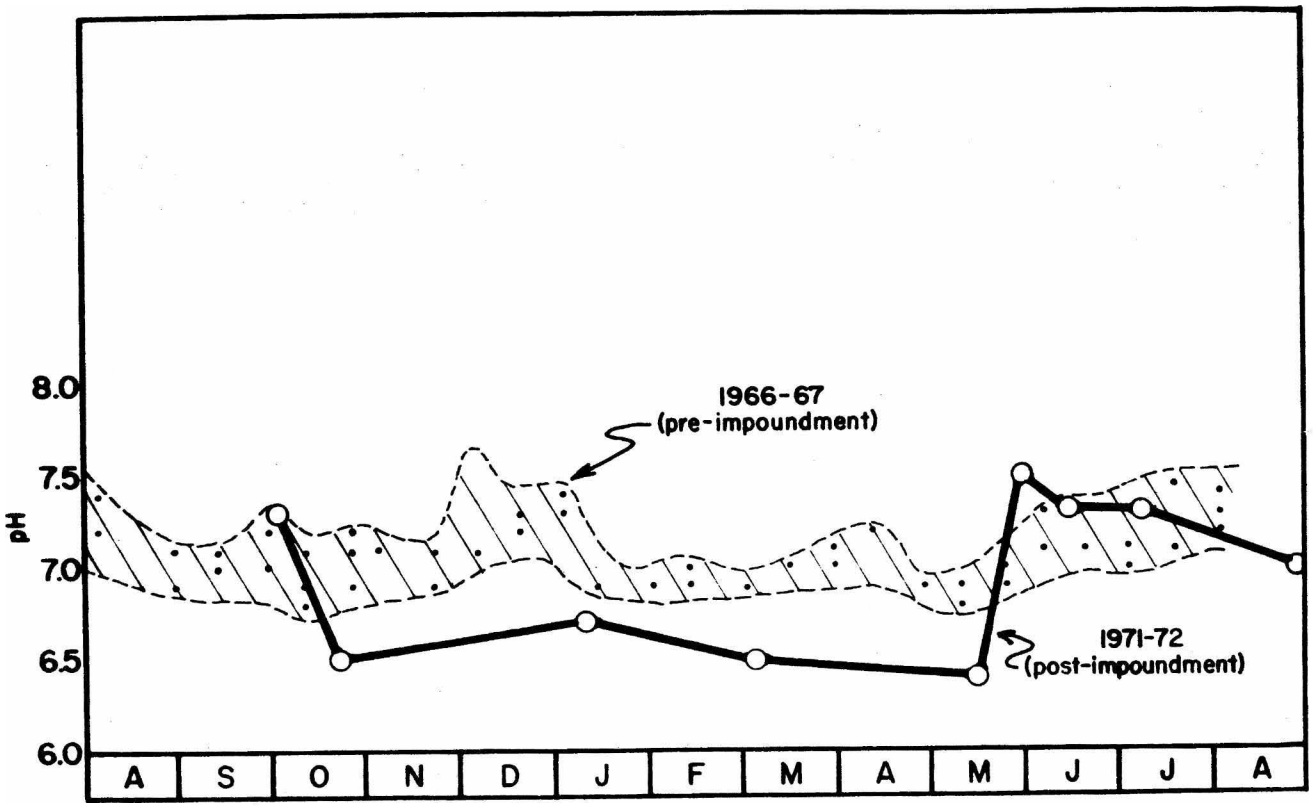
8.0
7.5
7.0
6.5
6.0
pH
1966-67
(pre-impoundment)
1971-72
(post-impoundment)
A
S
O
N
D
J
F
M
A
M
J
J
A

Figure 64

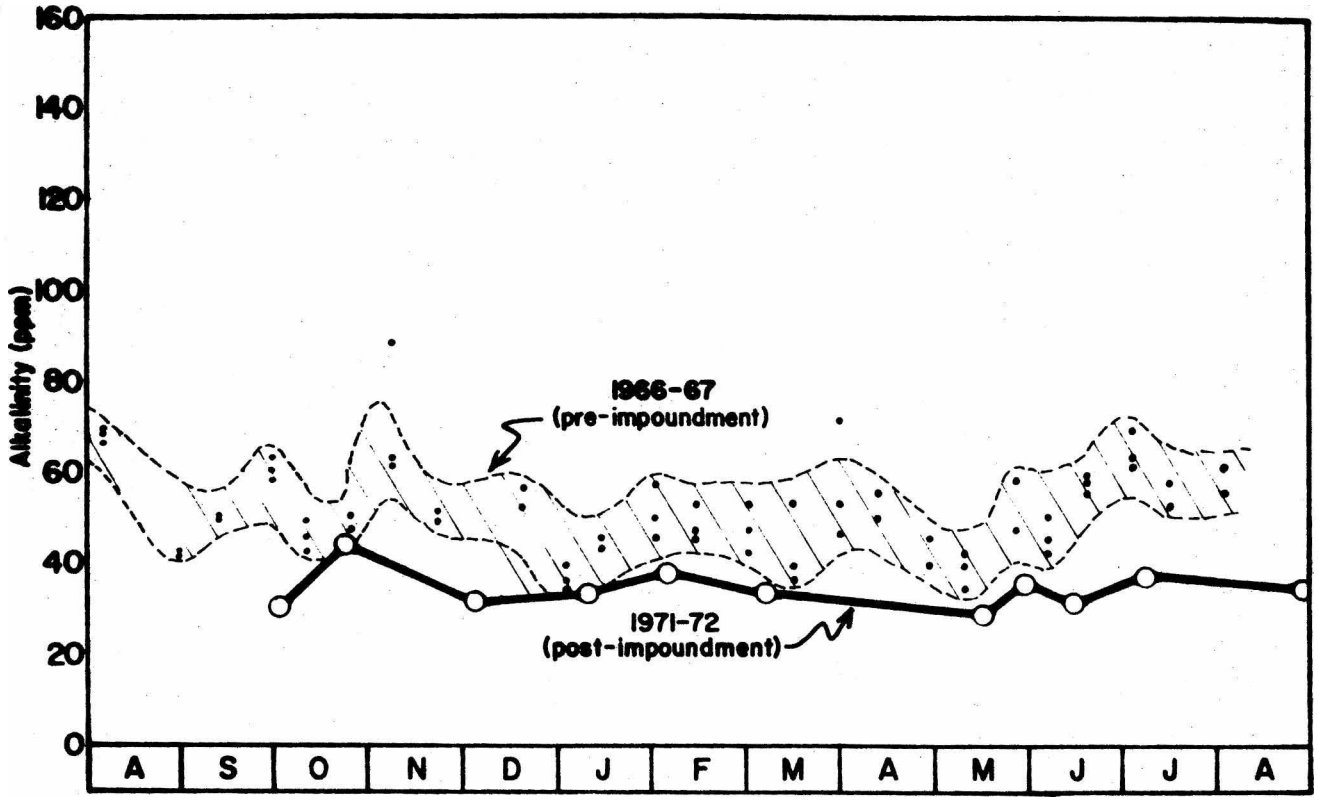
160
140
120
100
80
60
40
20
0
Alkalinity (ppm)
1966-67
(pre-impoundment)
1971-72
(post-impoundment)
A
S
O
N
D
J
F
M
A
M
J
J
A

Figure 65

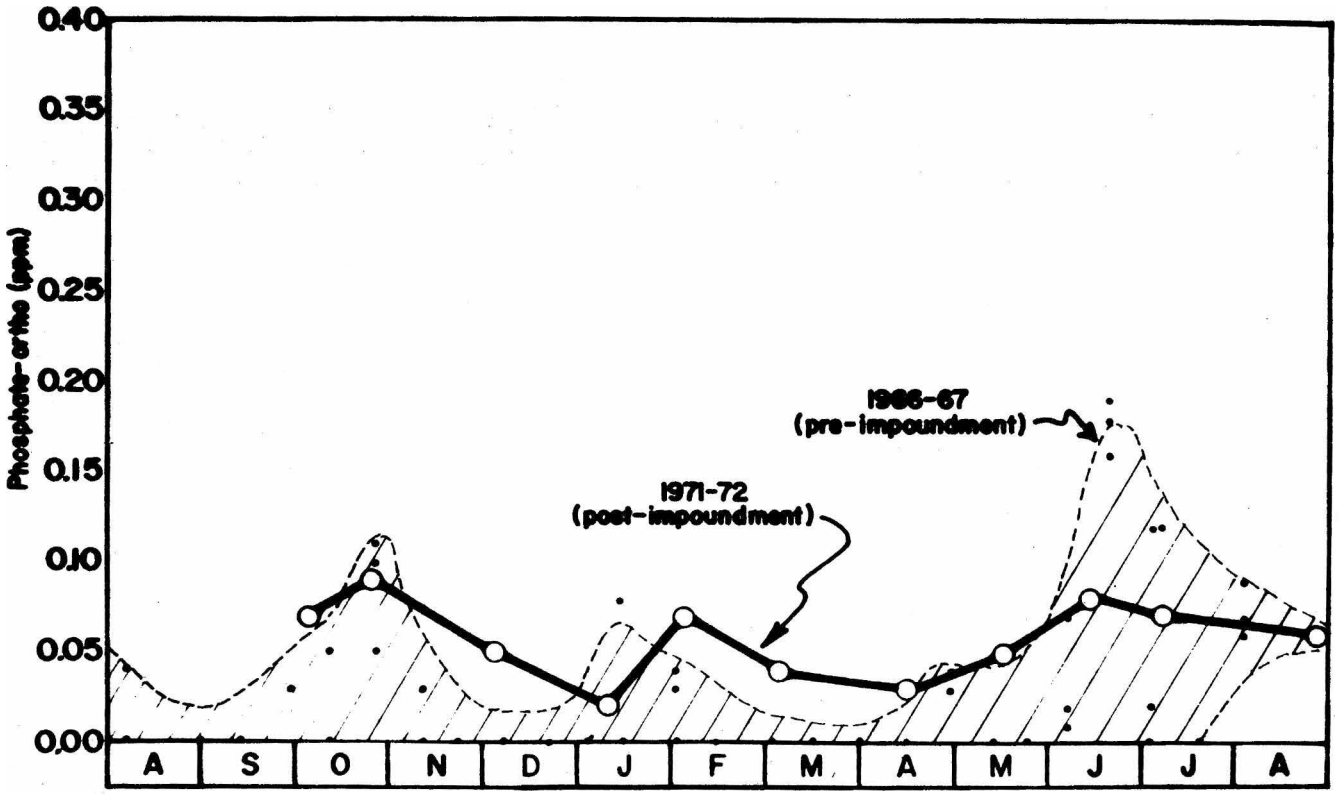
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Phosphate-ortho (ppm)
1966-67
(pre-impoundment)
1971-72
(post-impoundment)
A
S
O
N
D
J
F
M
A
M
J
J
A

Figure 66

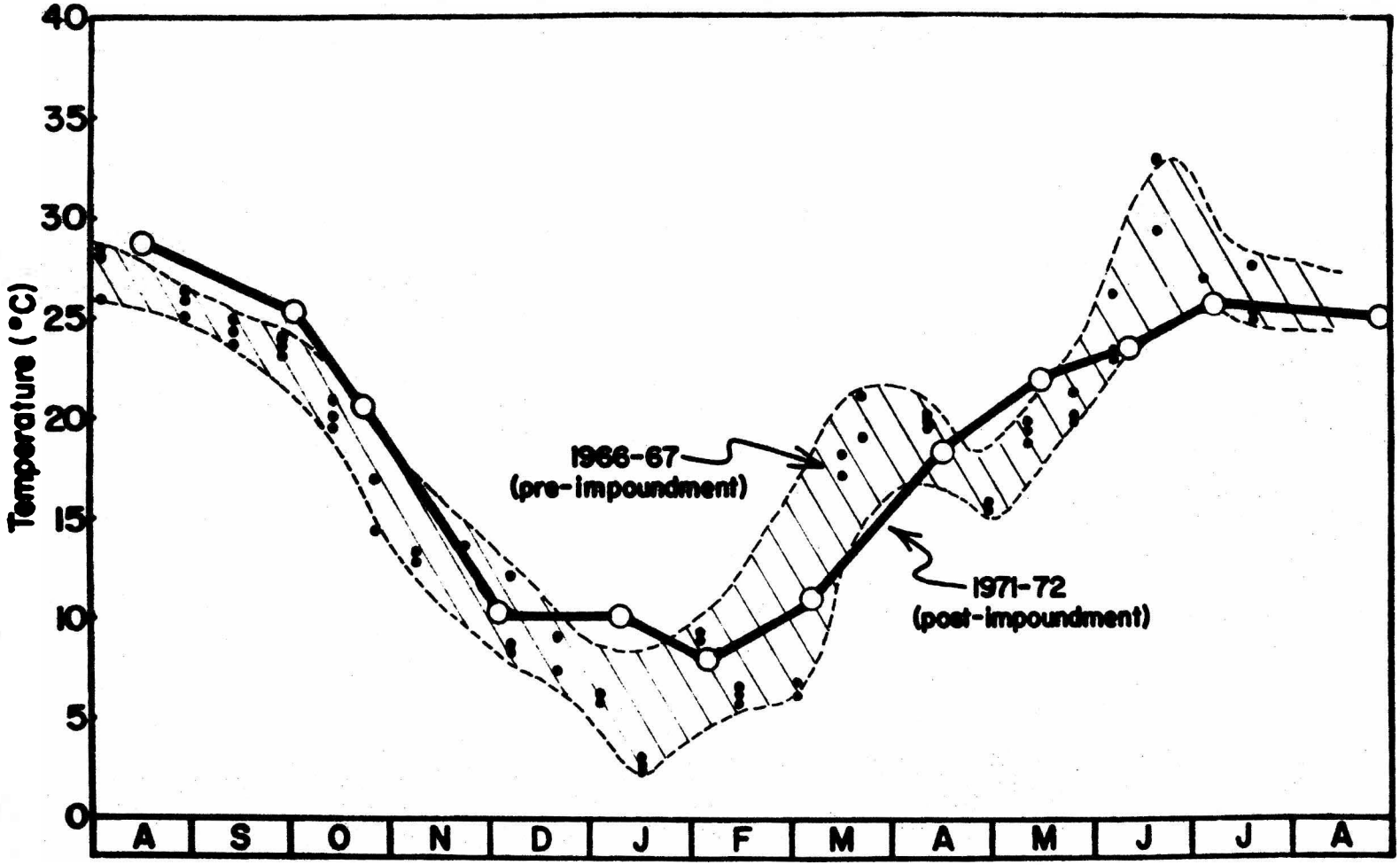
Temperature (°C)
40
35
30
25
20
15
10
5
0
A
S
O
N
D
J
F
M
A
M
J
J
A
1966-67
(pre-impoundment)
1971-72
(post-impoundment)

Figure 67

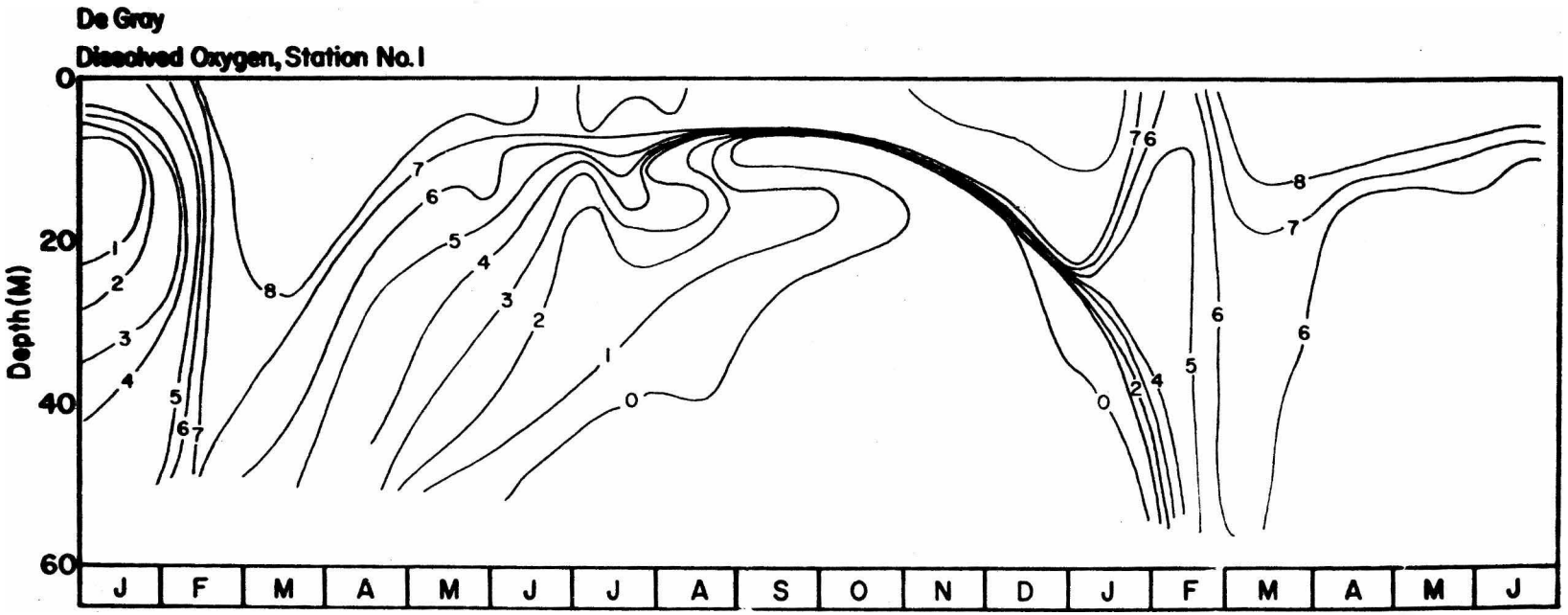
De Gray
Dissolved Oxygen, Station No. I
Depth (M)
0
20
40
60
J
F
M
A
M
J
J
A
S
O
N
D
J
F
M
A
M
J

Figure 68

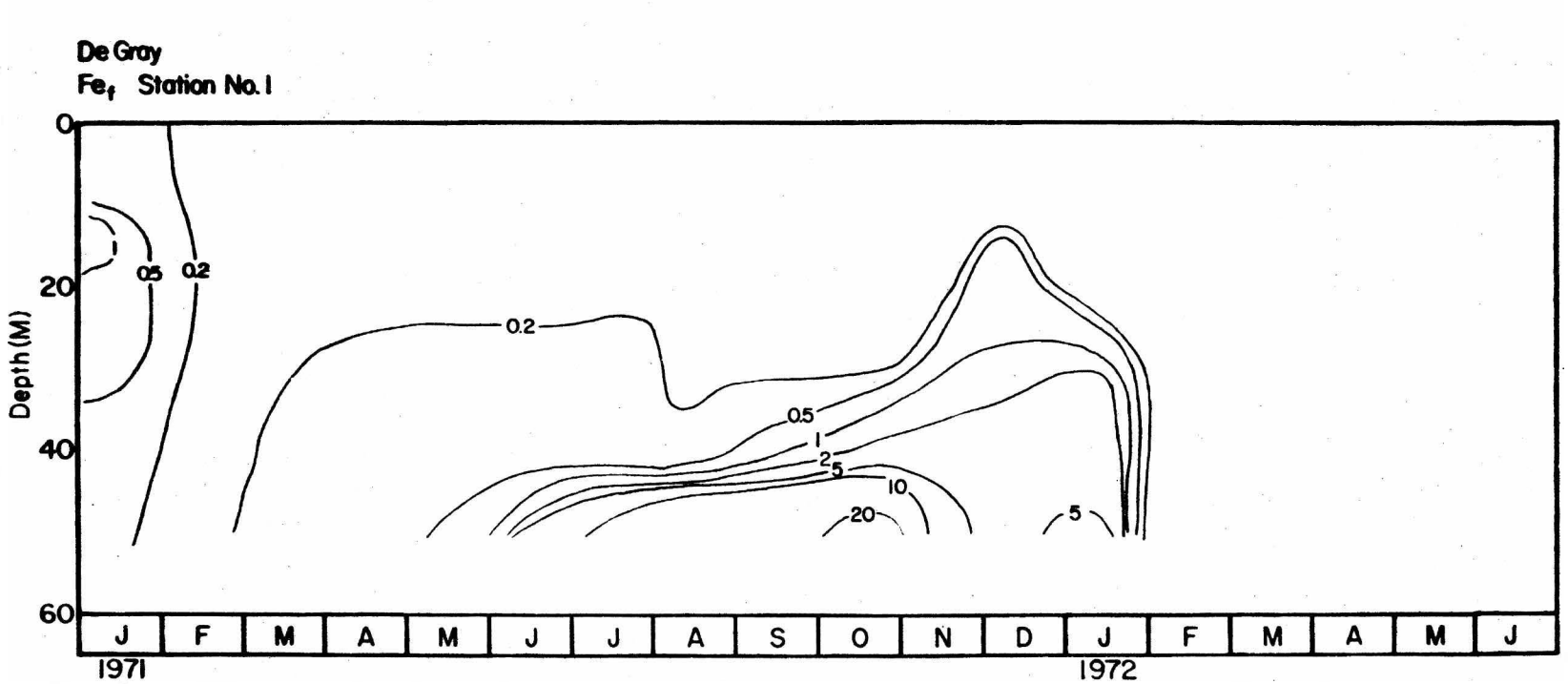
De Gray
Fe$_f$ Station No. 1
Depth (M)
0
20
40
60
0.5
0.2
0.2
0.5
1
2
5
10
20
5
J
F
M
A
M
J
J
A
S
O
N
D
J
F
M
A
M
J
1971
1972

Figure 69

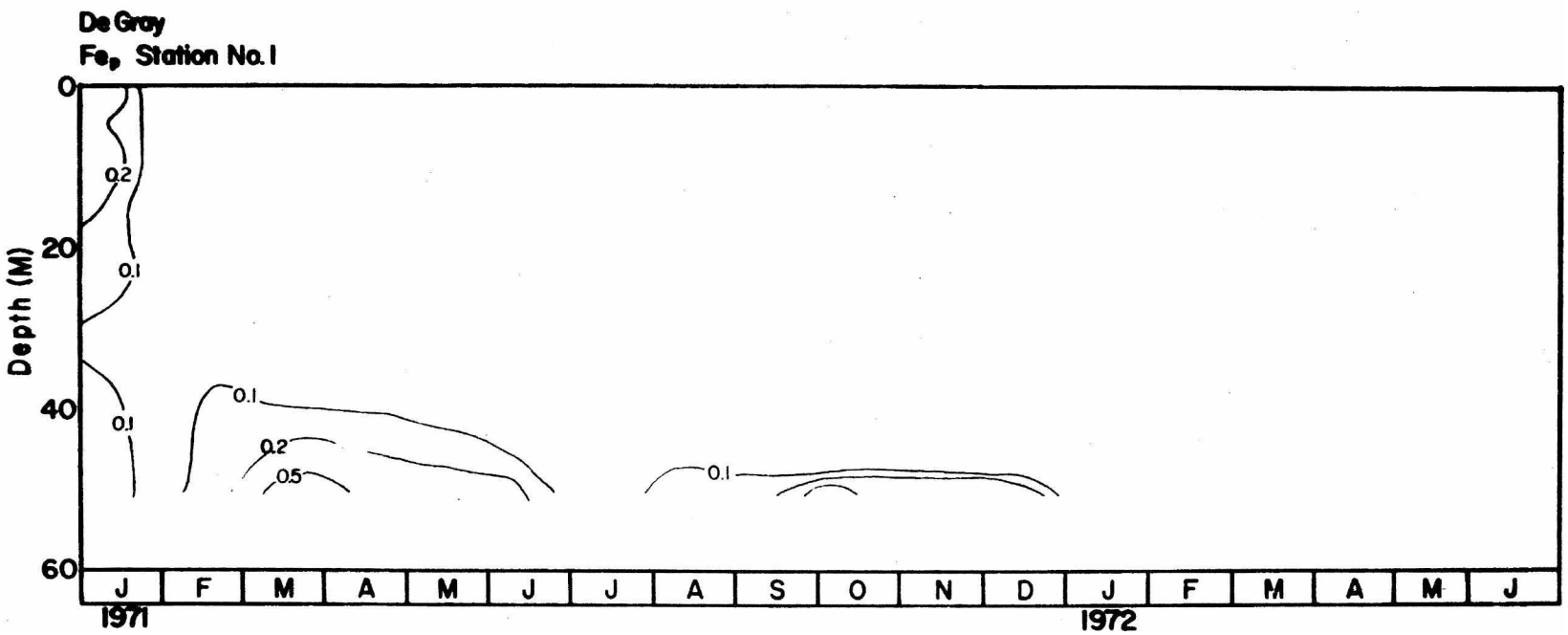
De Gray
Fe, Station No. 1
0
20
40
60
Depth (M)
0.2
0.1
0.1
0.1
0.2
0.5
0.1
J
F
M
A
M
J
J
A
S
O
N
D
J
F
M
A
M
J
1971
1972

Figure 70

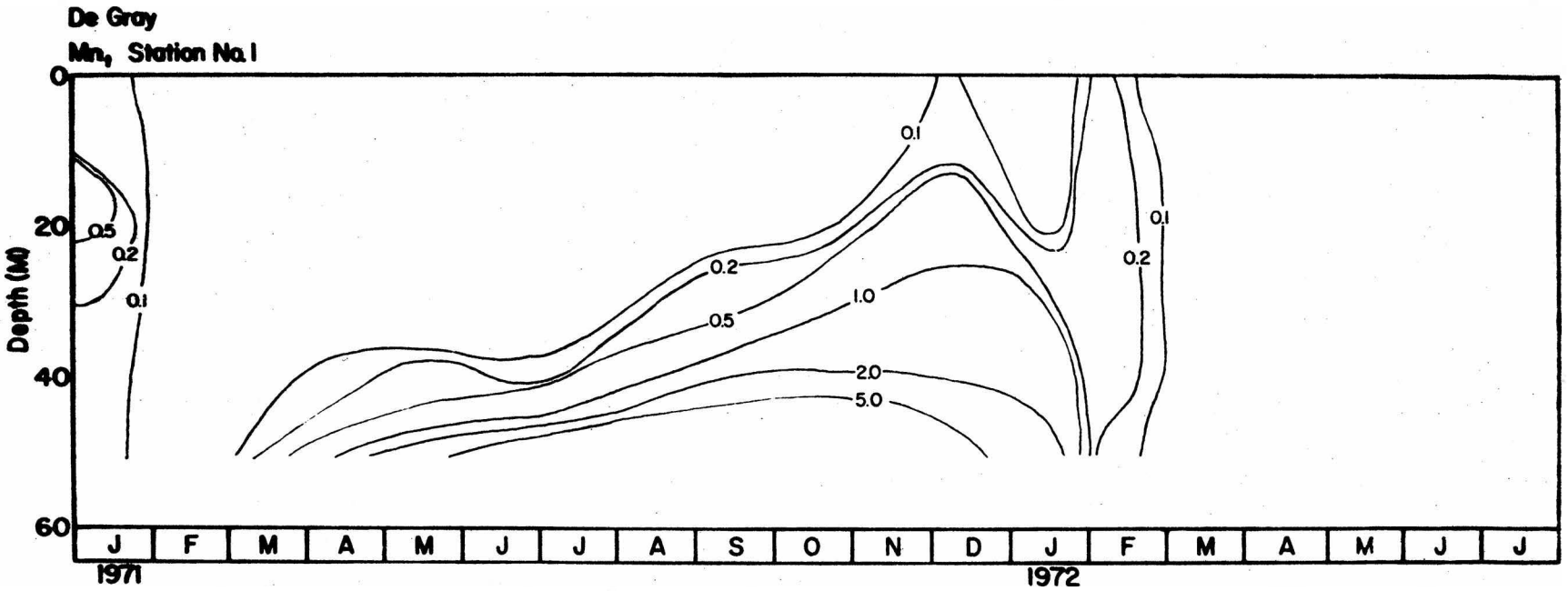
De Gray
Mn, Station No. 1
Depth (M)
0
20
40
60
0.5
0.2
0.1
0.1
0.2
0.5
1.0
2.0
5.0
0.1
0.2
J
F
M
A
M
J
J
A
S
O
N
D
J
F
M
A
M
J
J
1971
1972

Figure 71

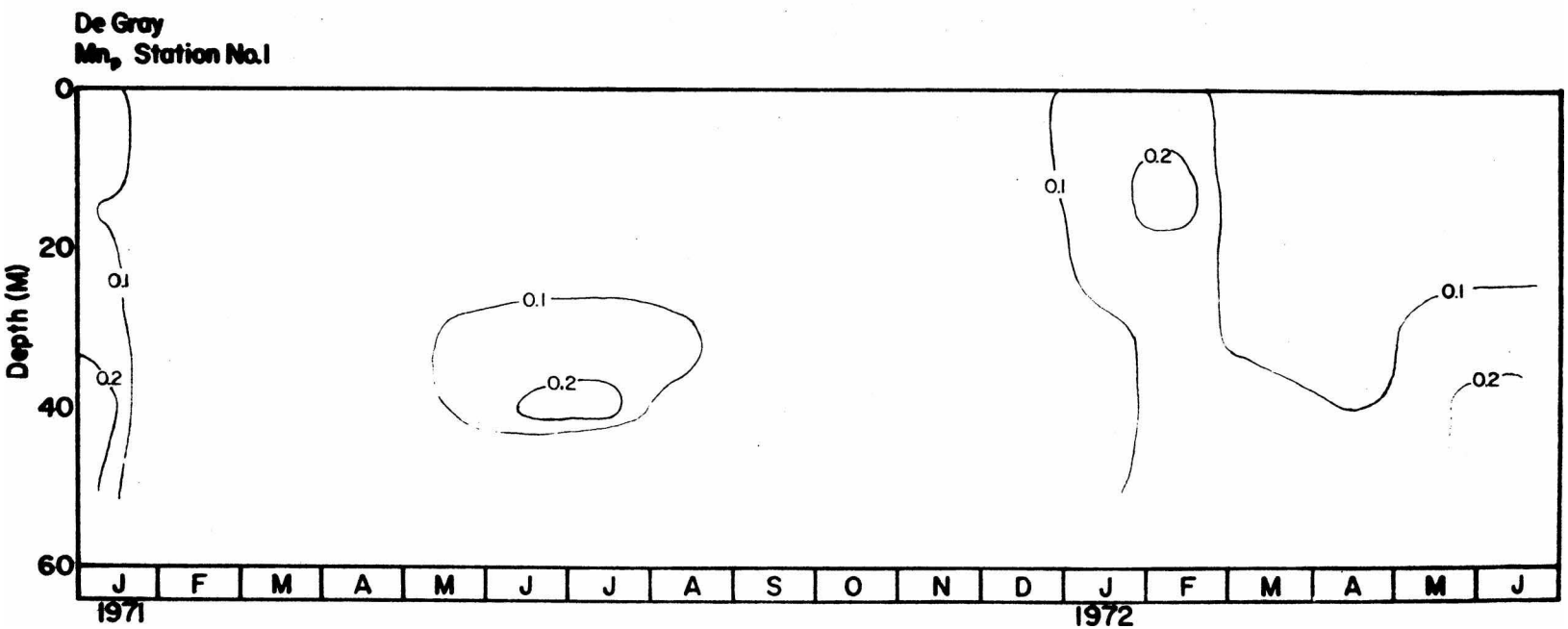
De Gray
Mn, Station No.1
Depth (M)
0
20
40
60
0.1
0.2
0.1
0.2
0.1
0.2
0.1
0.2
J
F
M
A
M
J
J
A
S
O
N
D
J
F
M
A
M
J
1971
1972

Figure 72

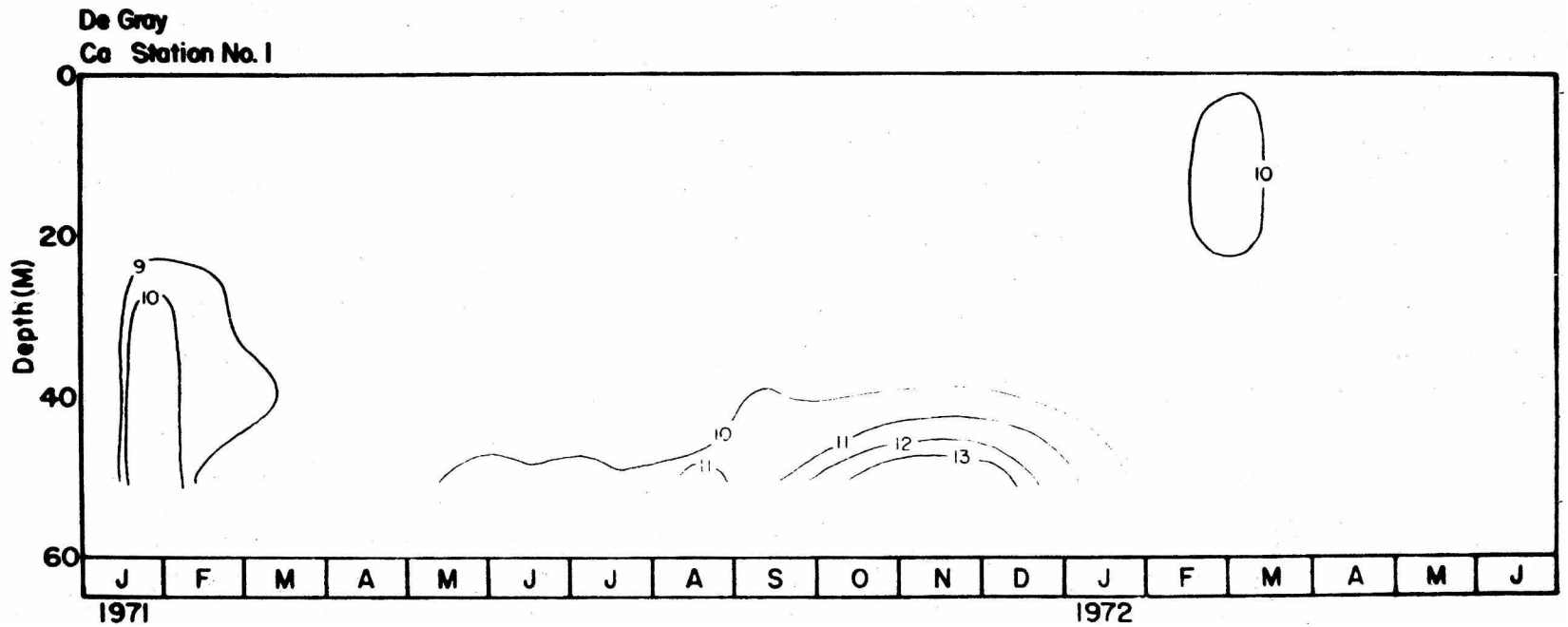
De Gray
Ca Station No. 1
0
20
40
60
Depth (M)
9
10
10
11
10
11
12
13
10
J
F
M
A
M
J
J
A
S
O
N
D
J
F
M
A
M
J
1971
1972

Figure 73

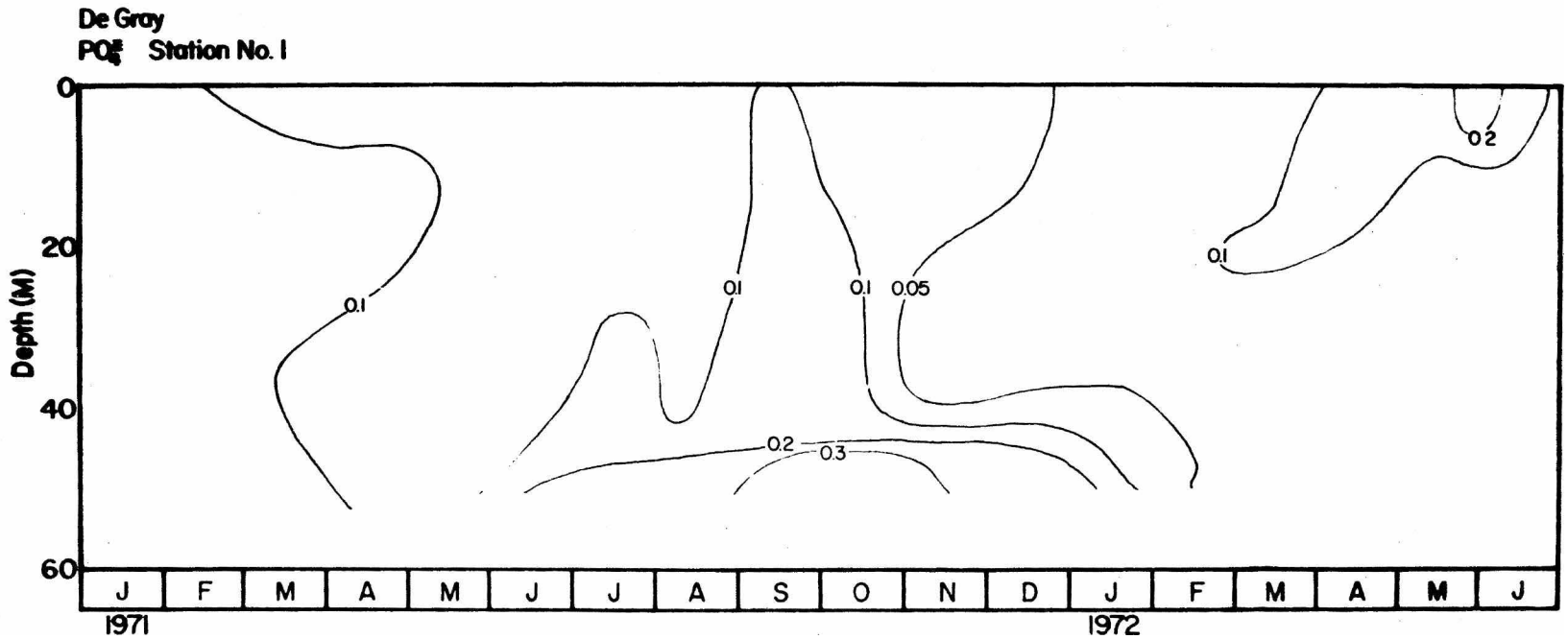
De Gray
PQ Station No. 1
Depth (M)
0
20
40
60
0.1
0.1
0.1
0.05
0.2
0.3
0.1
0.2
J
F
M
A
M
J
J
A
S
O
N
D
J
F
M
A
M
J
1971
1972

Figure 74

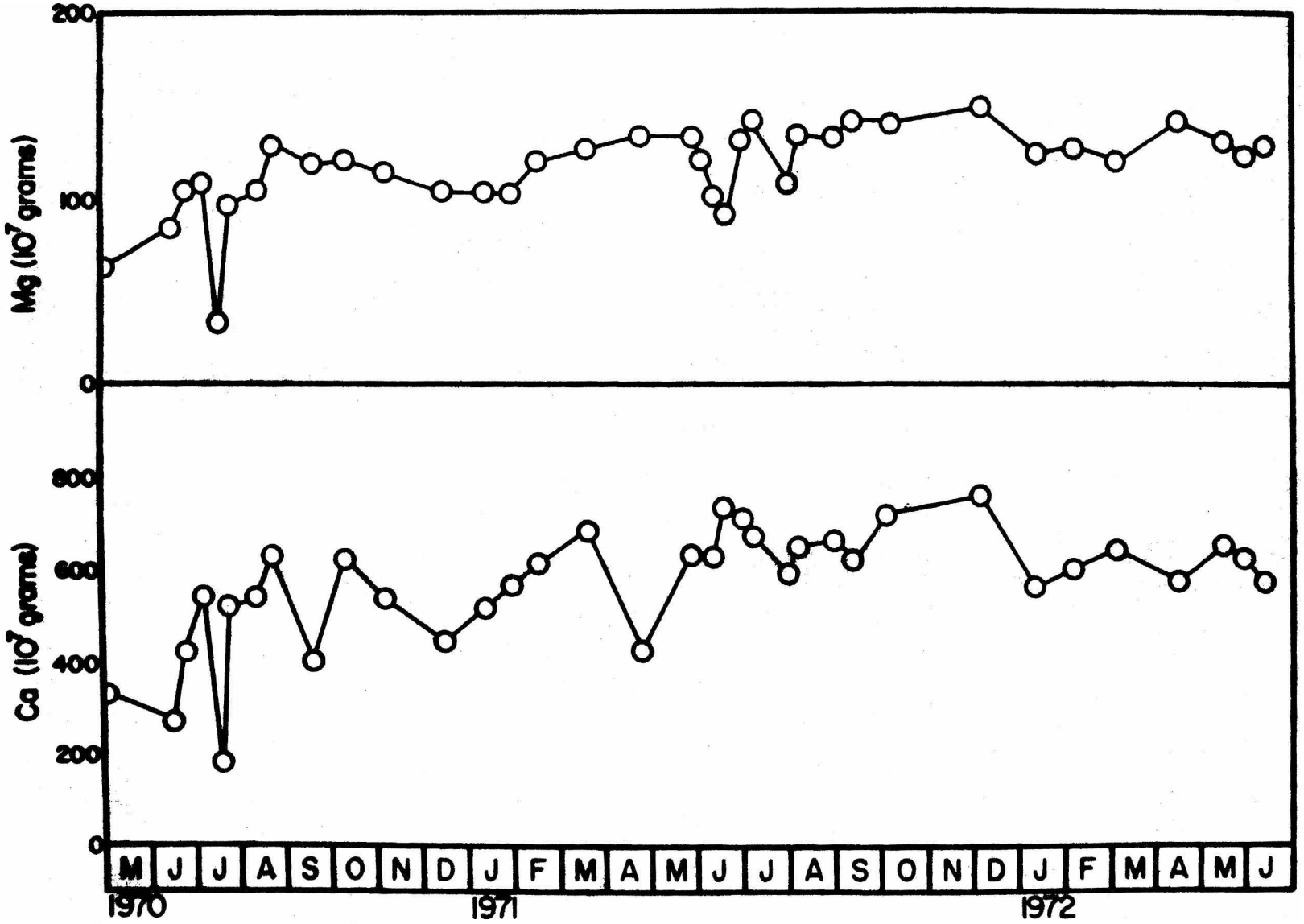
200
100
0
Mg (10^7 grams)
800
600
400
200
0
Ca (10^7 grams)
M J J A S O N D J F M A M J J A S O N D J F M A M J
1970
1971
1972

Figure 75

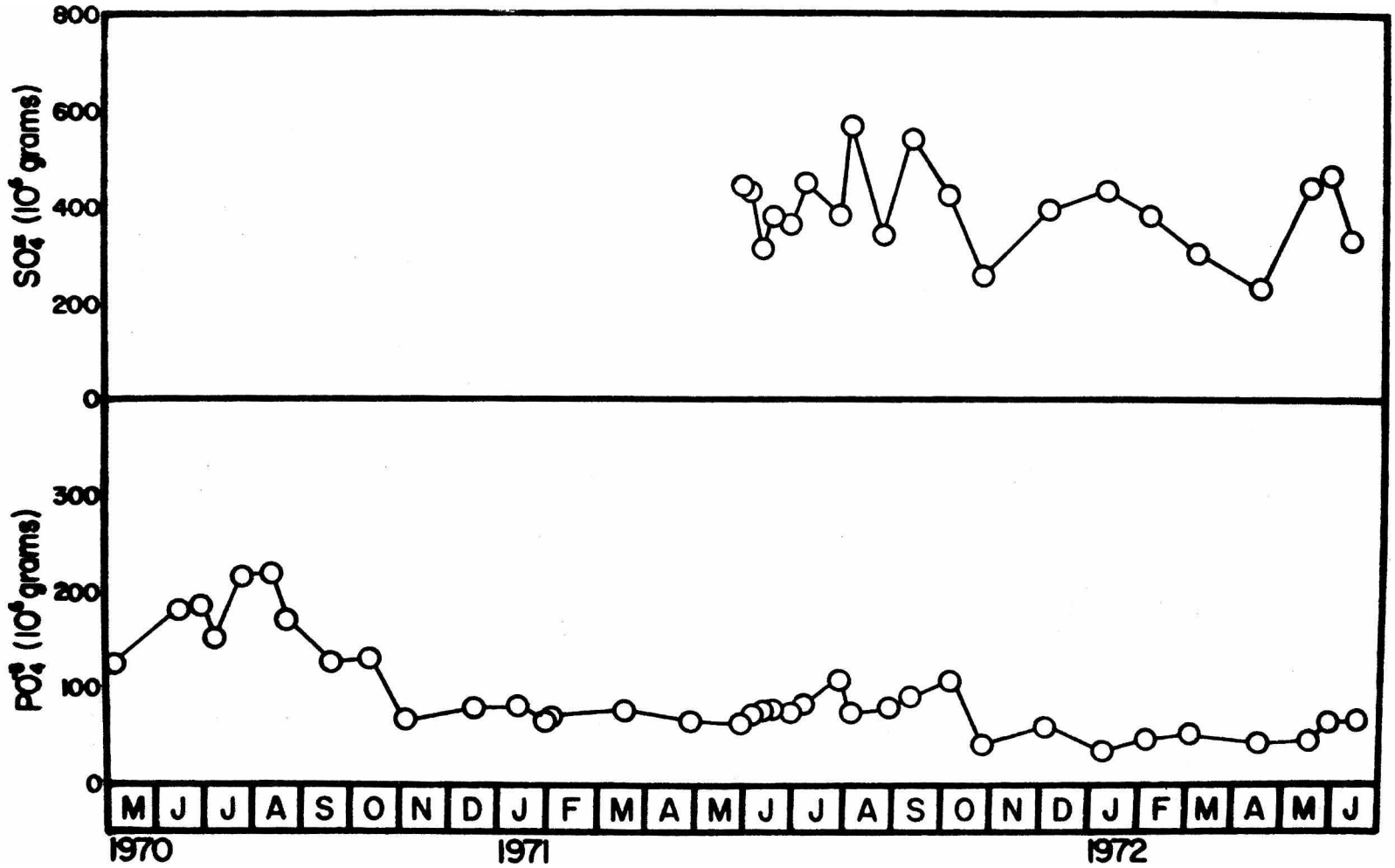
800
600
400
200
0
$SO_4^=$ (10^6 grams)
300
200
100
0
$PO_4^{\equiv}$ (10^6 grams)
M J J A S O N D J F M A M J J A S O N D J F M A M J
1970
1971
1972

Figure 76

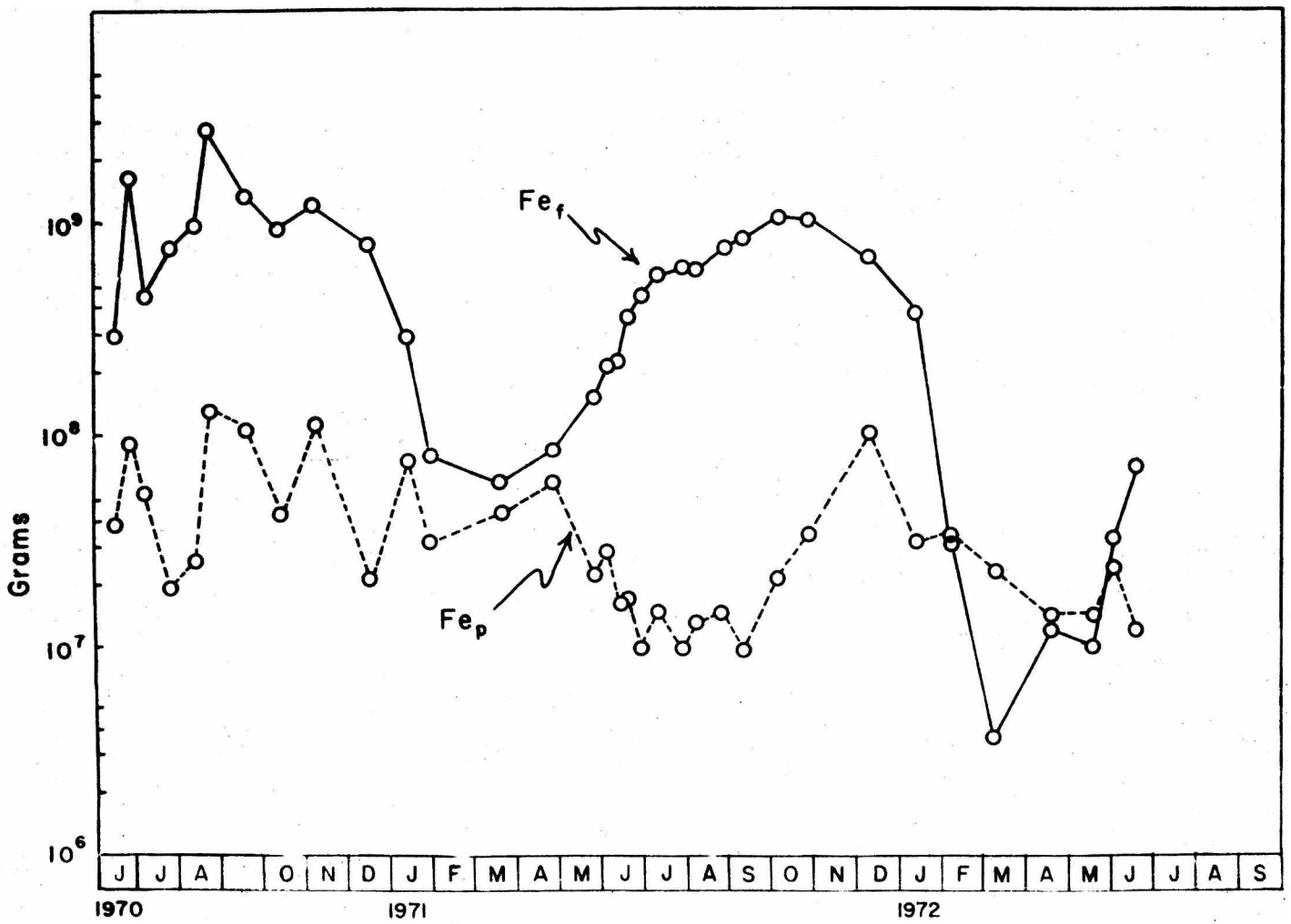
Grams
10^9
10^8
10^7
10^6
Fe_f
Fe_p
J J A O N D J F M A M J J A S O N D J F M A M J J A S
1970
1971
1972

Figure 77

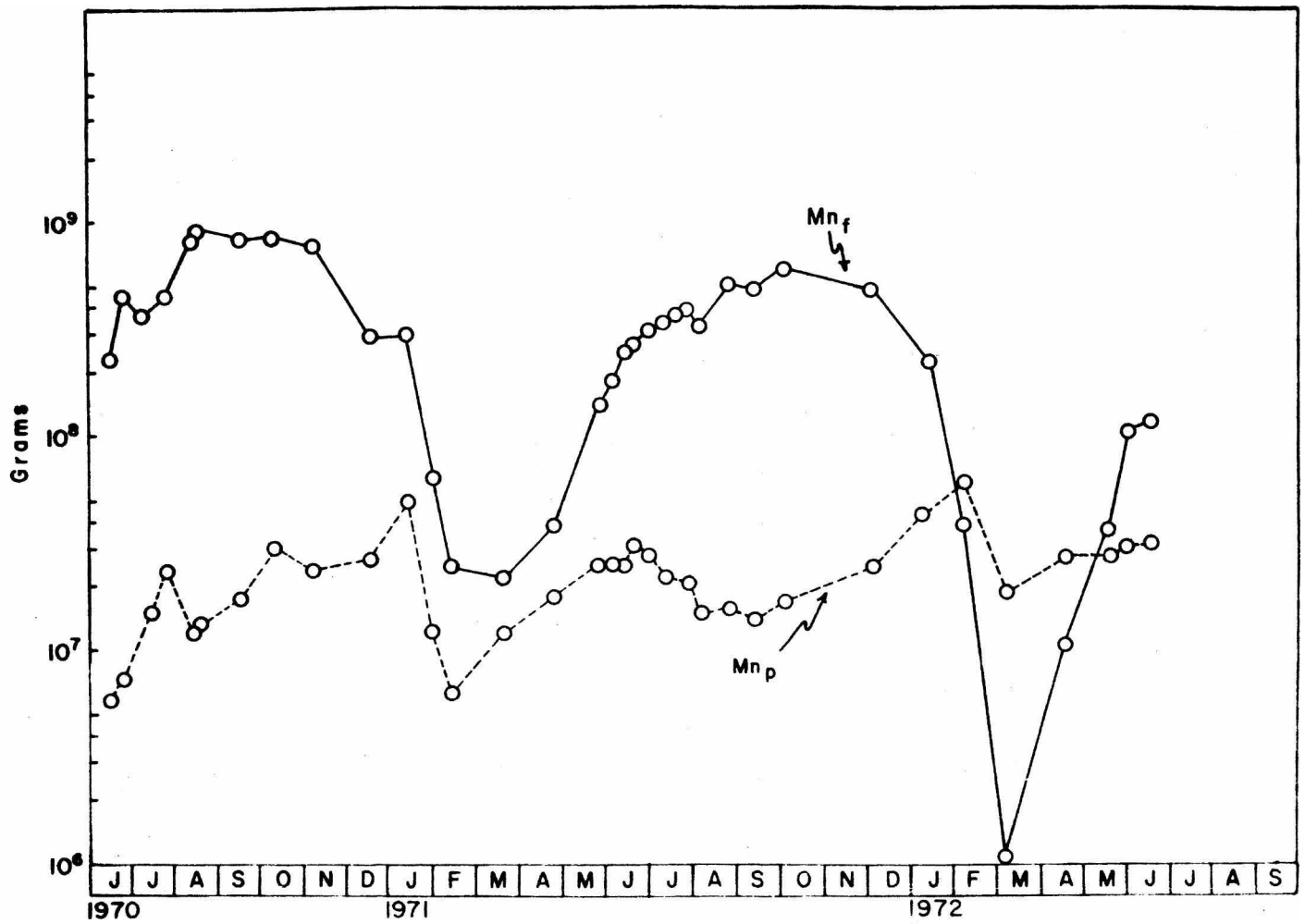
Grams
10^9
10^8
10^7
10^6
Mn_f
Mn_p
J J A S O N D J F M A M J J A S O N D J F M A M J J A S
1970
1971
1972

Figure 78

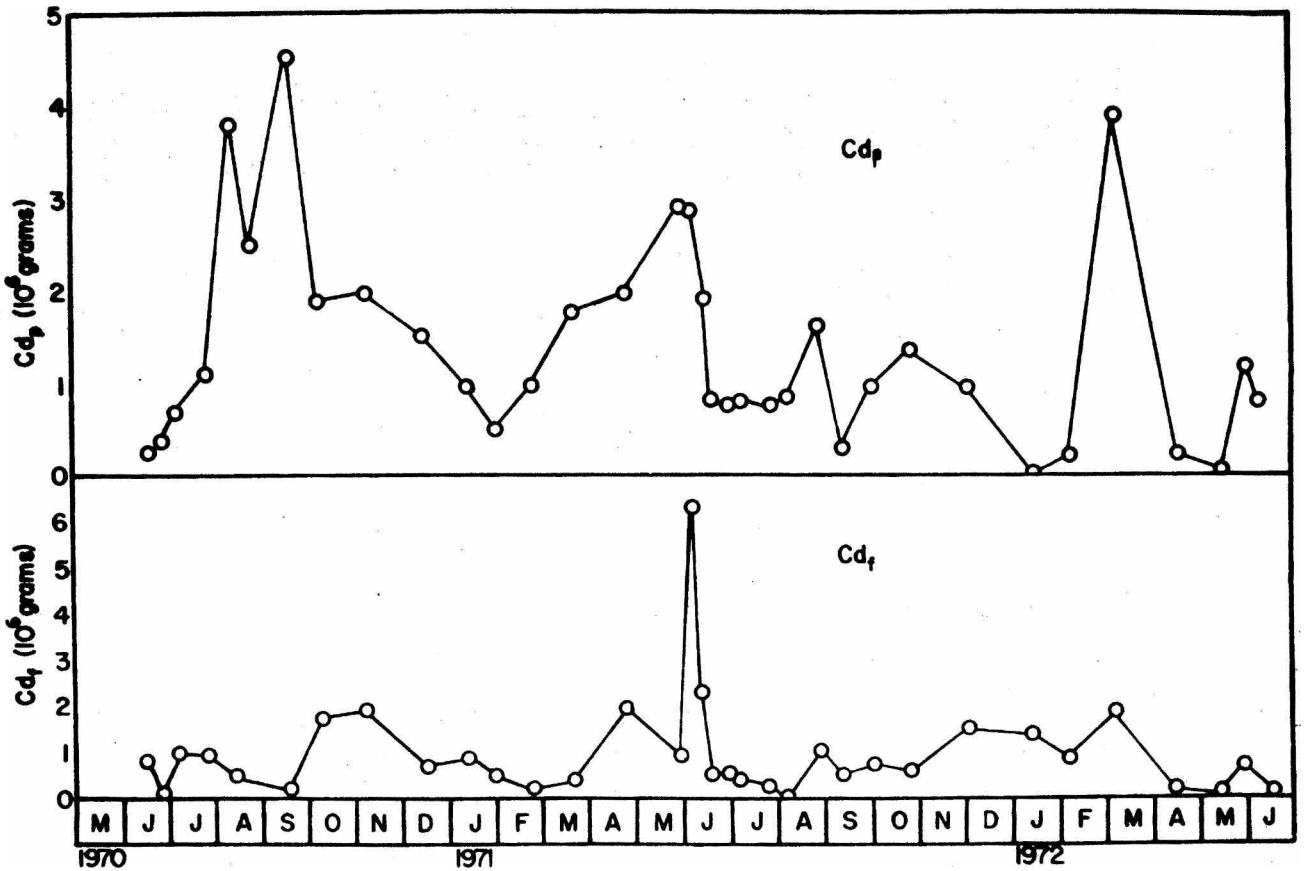
Cd_p (10^6 grams)
Cd_p
Cd_f (10^6 grams)
Cd_f
M J J A S O N D J F M A M J J A S O N D J F M A M J
1970
1971
1972

Figure 79

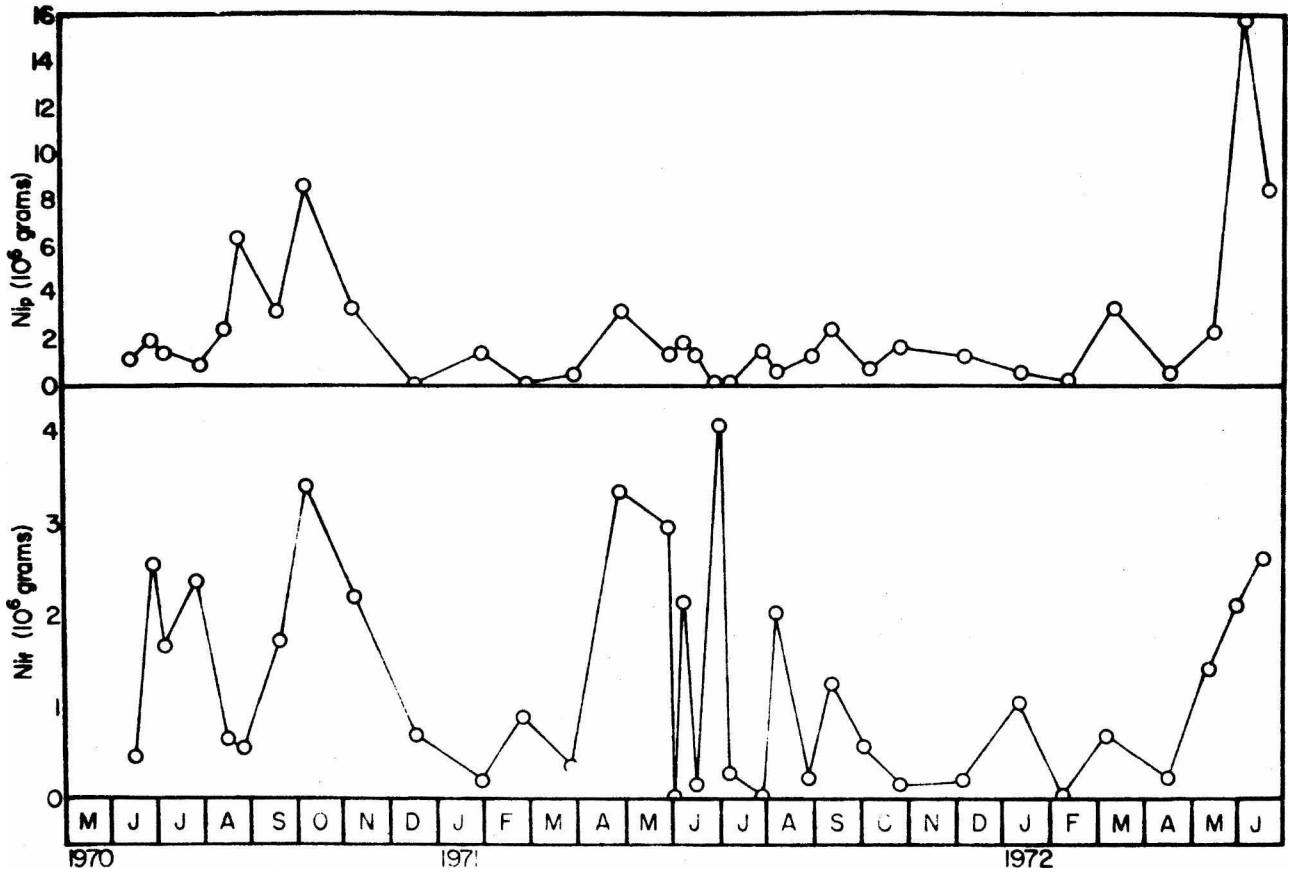
Nip (10⁶ grams)
16
14
12
10
8
6
4
2
0
Nit (10⁶ grams)
4
3
2
1
0
M J J A S O N D J F M A M J J A S O N D J F M A M J
1970
1971
1972

Figure 80

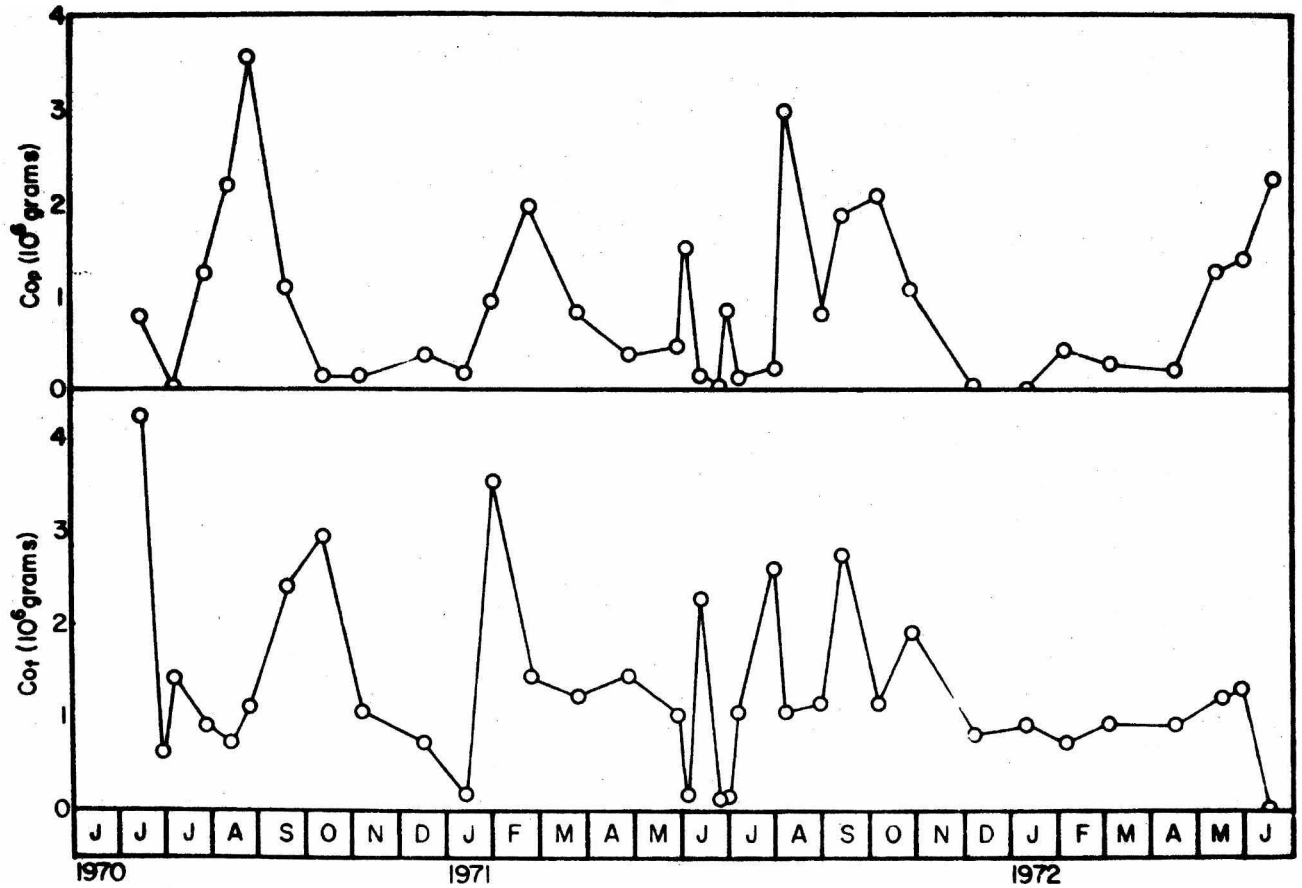
C_{O_2} (10^6 grams)
C_{O_1} (10^6 grams)
0
1
2
3
4
J J J A S O N D J F M A M J J A S O N D J F M A M J
1970
1971
1972

Figure 81

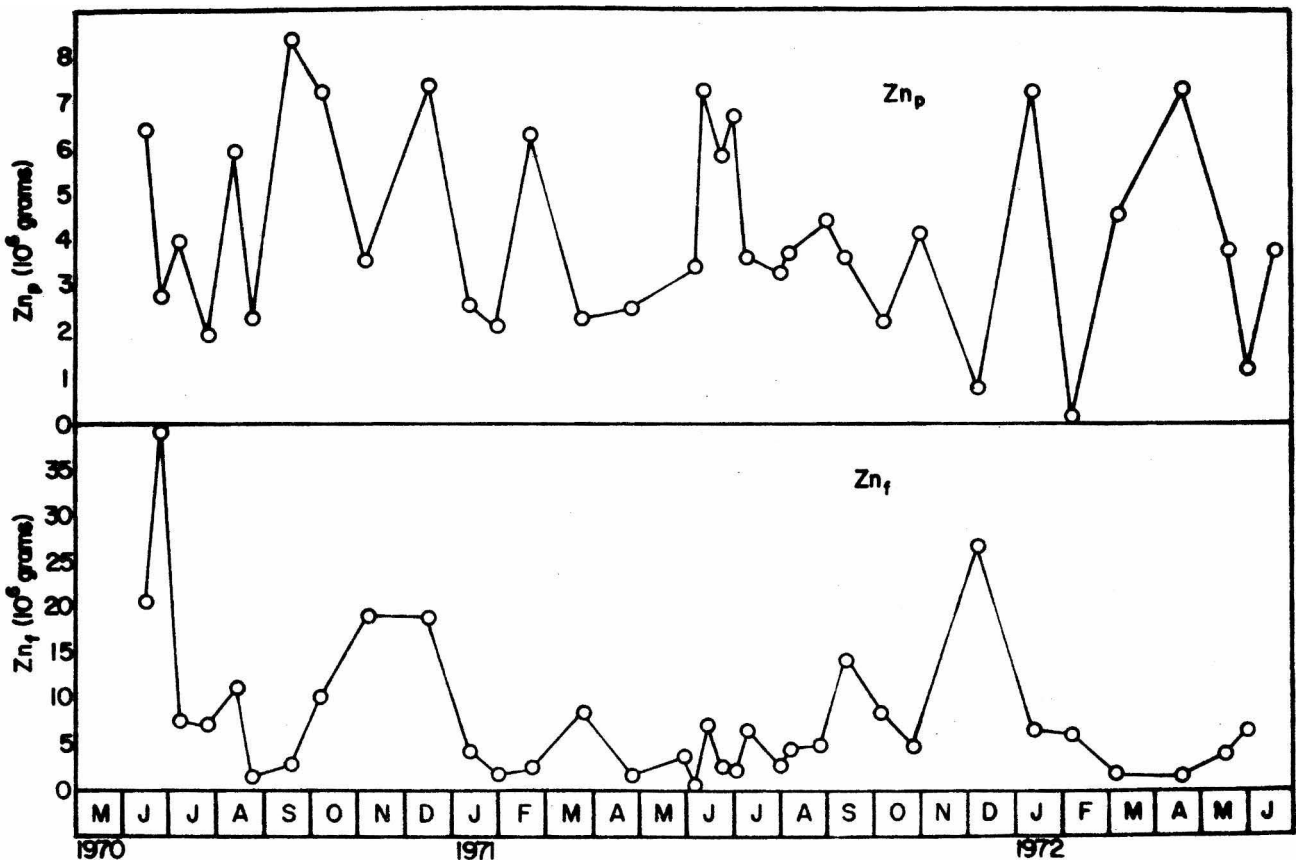
Zn_p
Zn_p (10^6 grams)
Zn_f
Zn_f (10^6 grams)
M J J A S O N D J F M A M J J A S O N D J F M A M J
1970
1971
1972

Figure 82

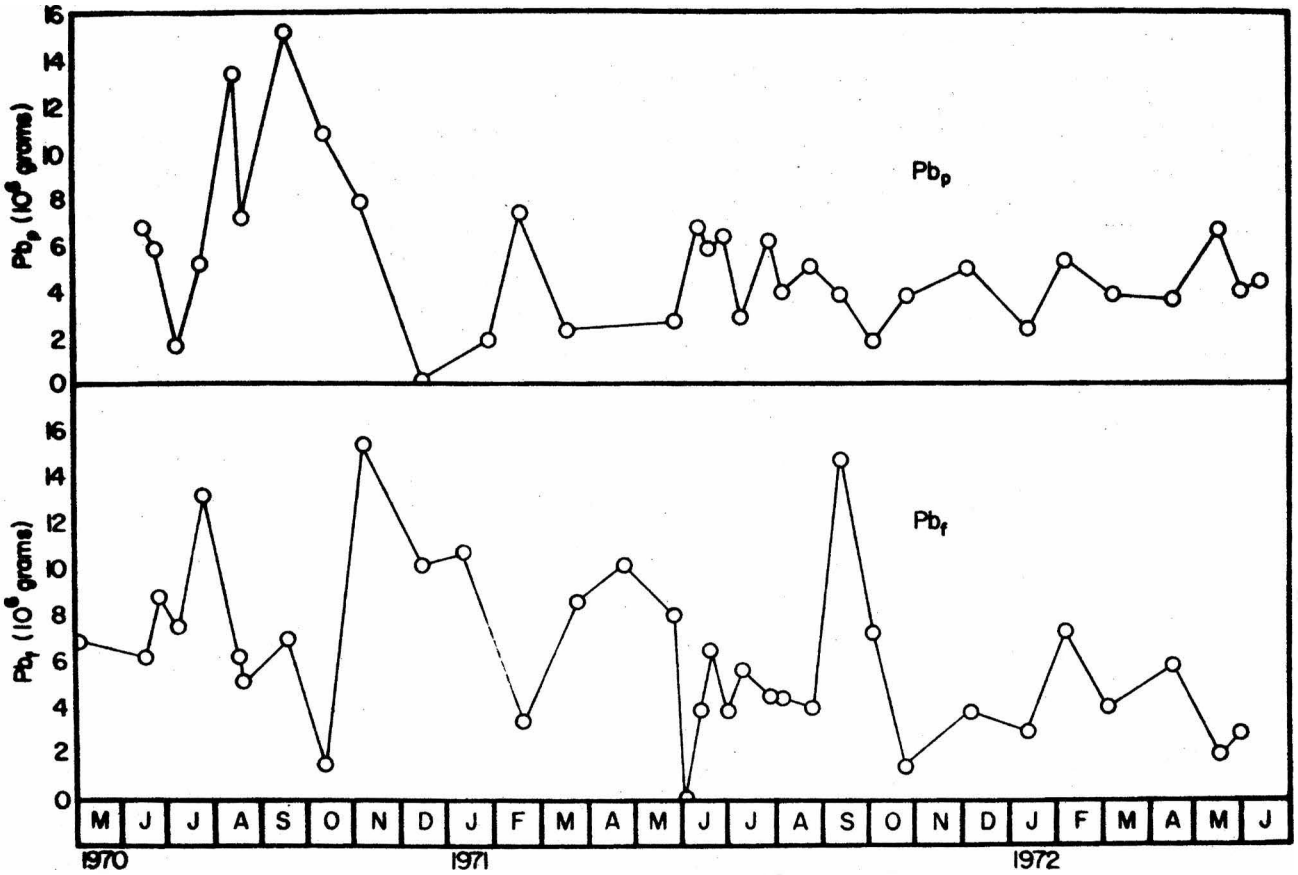
Pb_p (10^{-8} grams)
Pb_f (10^{-8} grams)
Pb_p
Pb_f
0
2
4
6
8
10
12
14
16
M J J A S O N D J F M A M J J A S O N D J F M A M J
1970
1971
1972

Figure 83

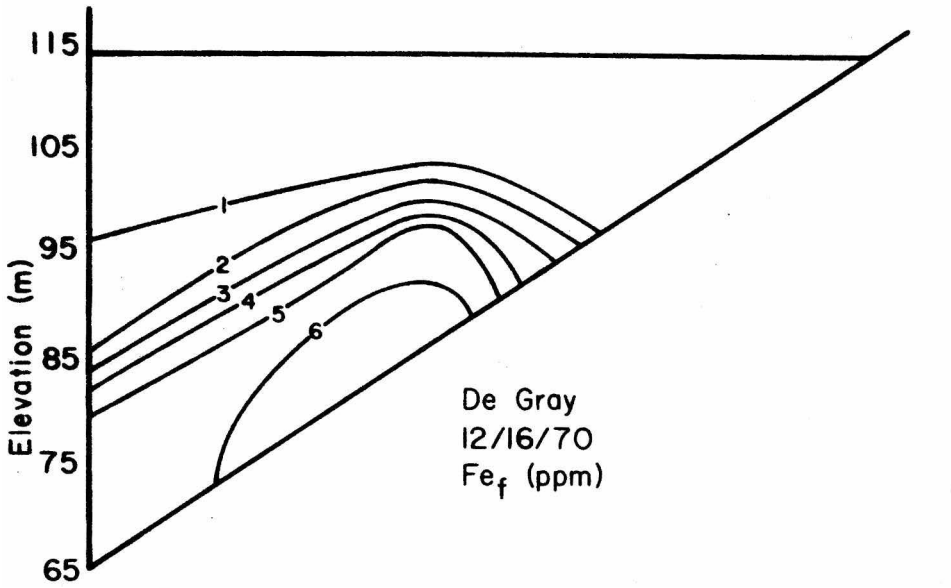

Figure 84

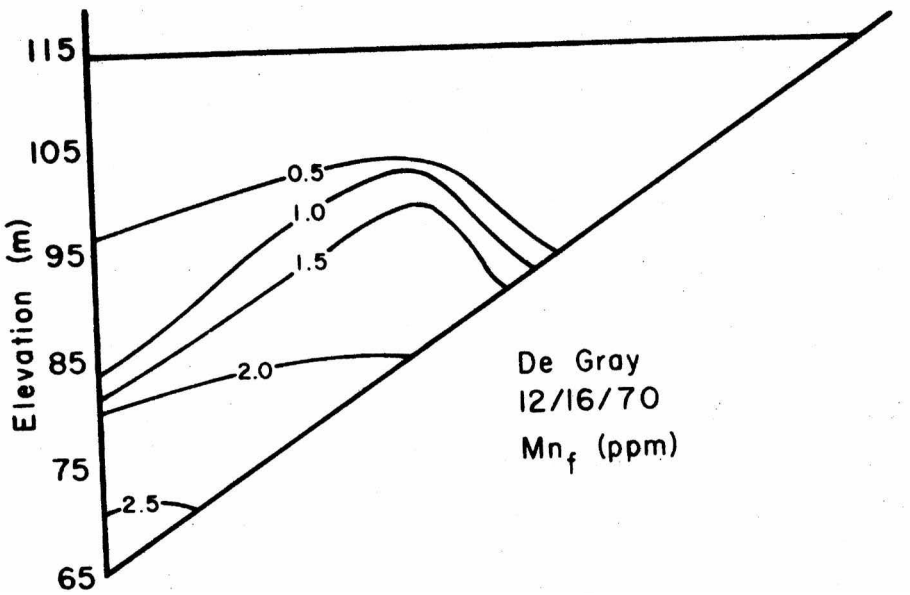
115
105
95
85
75
65
Elevation (m)
0.5
1.0
1.5
2.0
2.5
De Gray
12/16/70
Mn$_f$ (ppm)

Figure 85

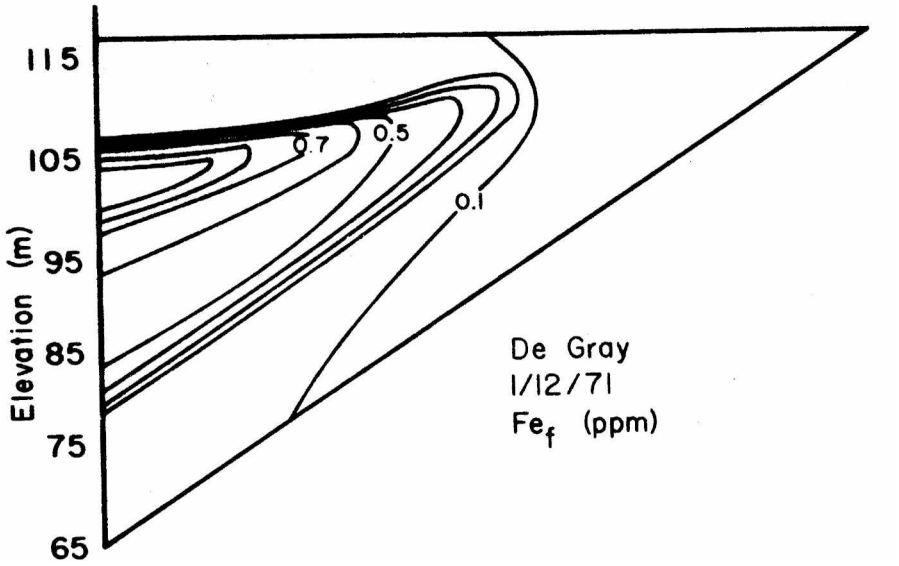

Figure 86

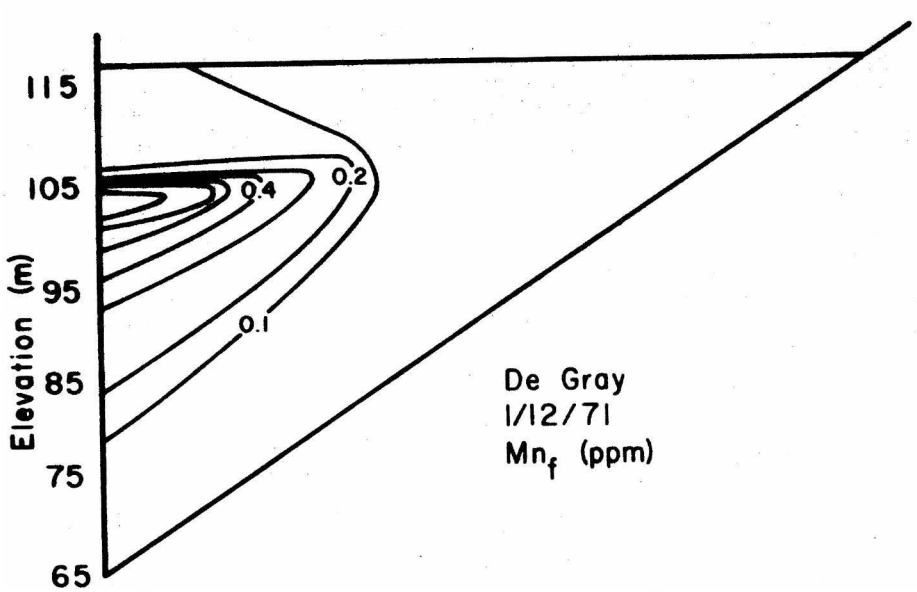

Figure 87

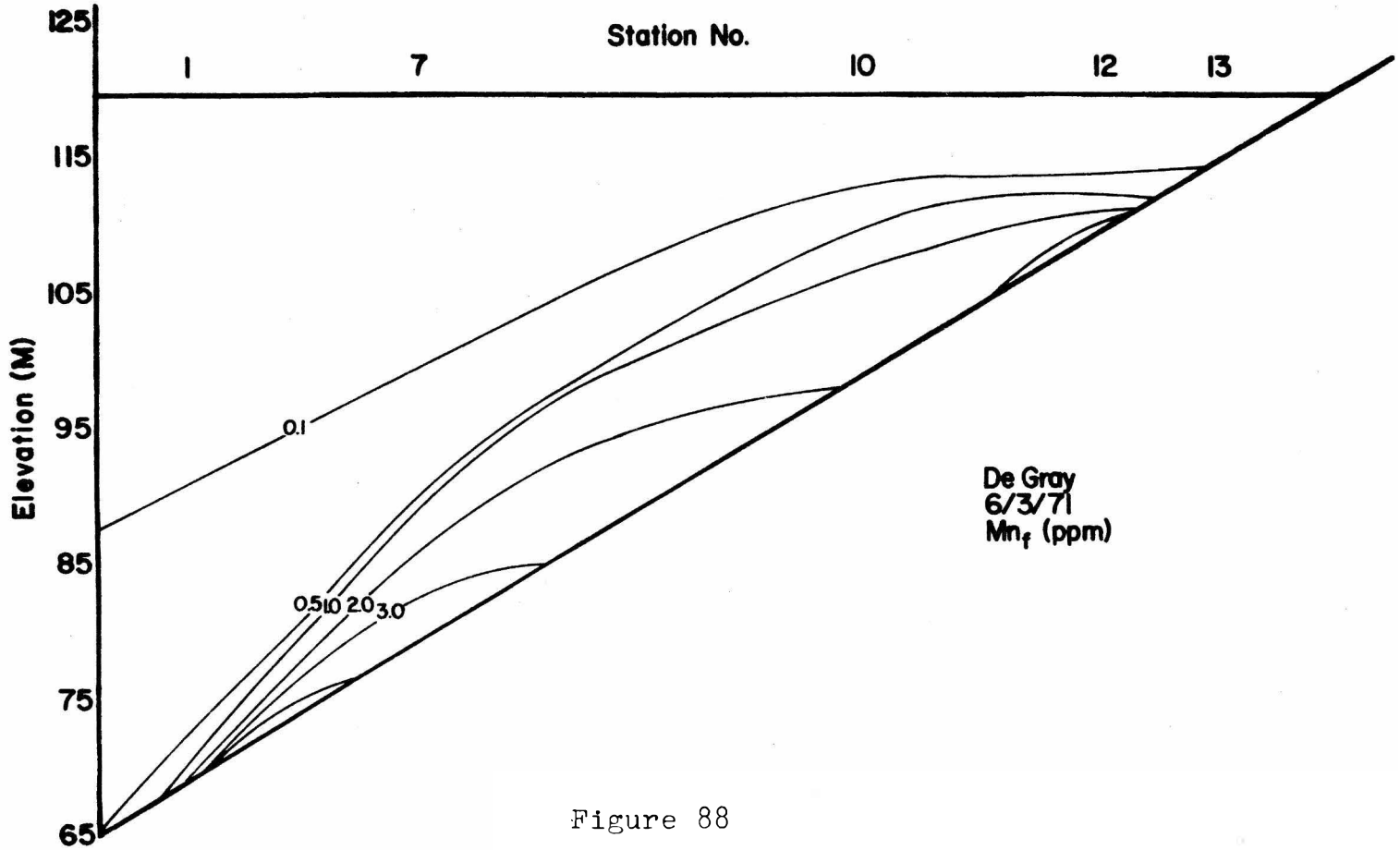
Station No.
1
7
10
12
13
125
115
105
95
85
75
65
Elevation (M)
0.1
0.5
1.0
2.0
3.0
De Gray
6/3/71
Mnf (ppm)

Figure 88

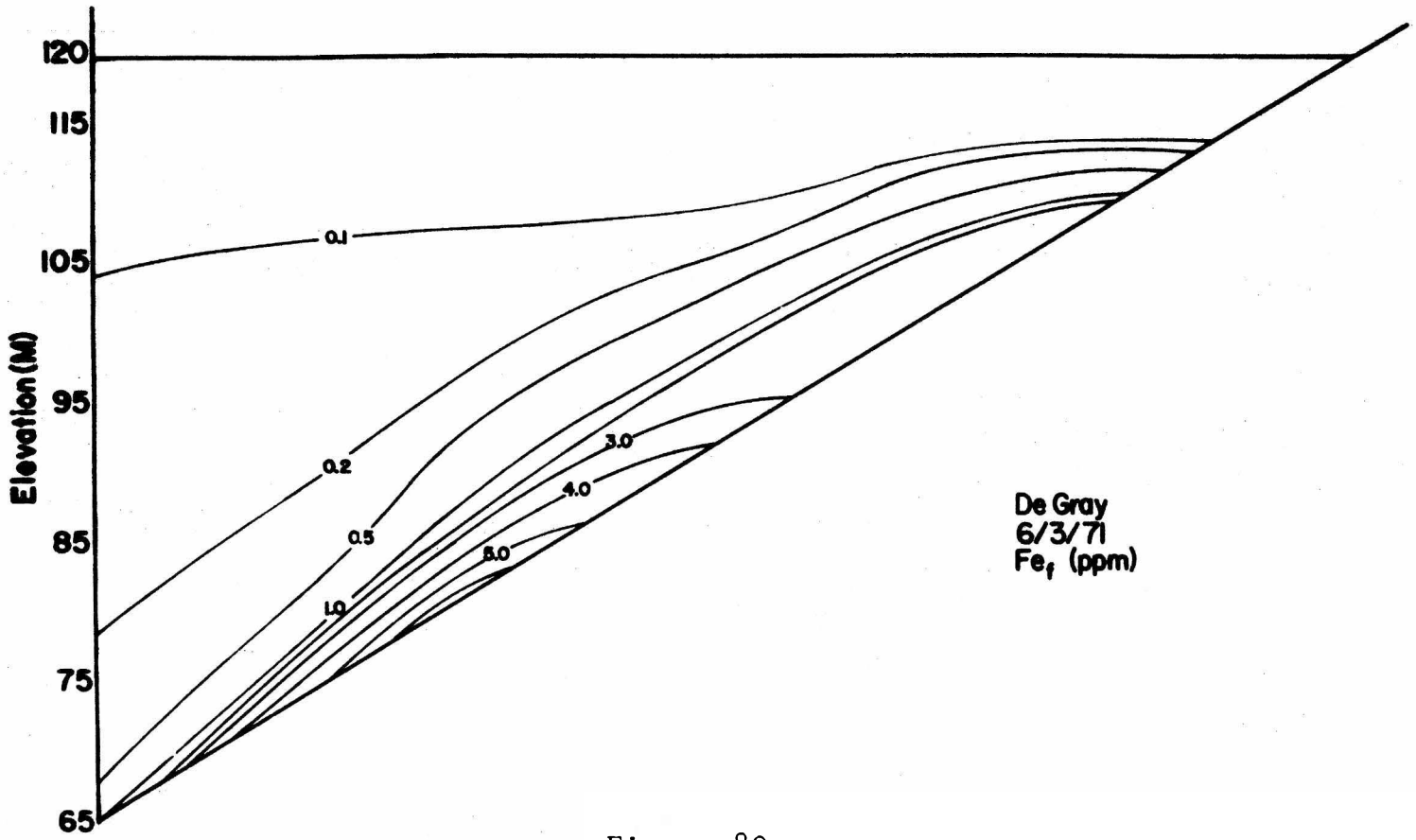
120
115
105
95
85
75
65
Elevation (M)
0.1
0.2
0.5
1.0
3.0
4.0
5.0
De Gray
6/3/71
Fe$_f$ (ppm)

Figure 89

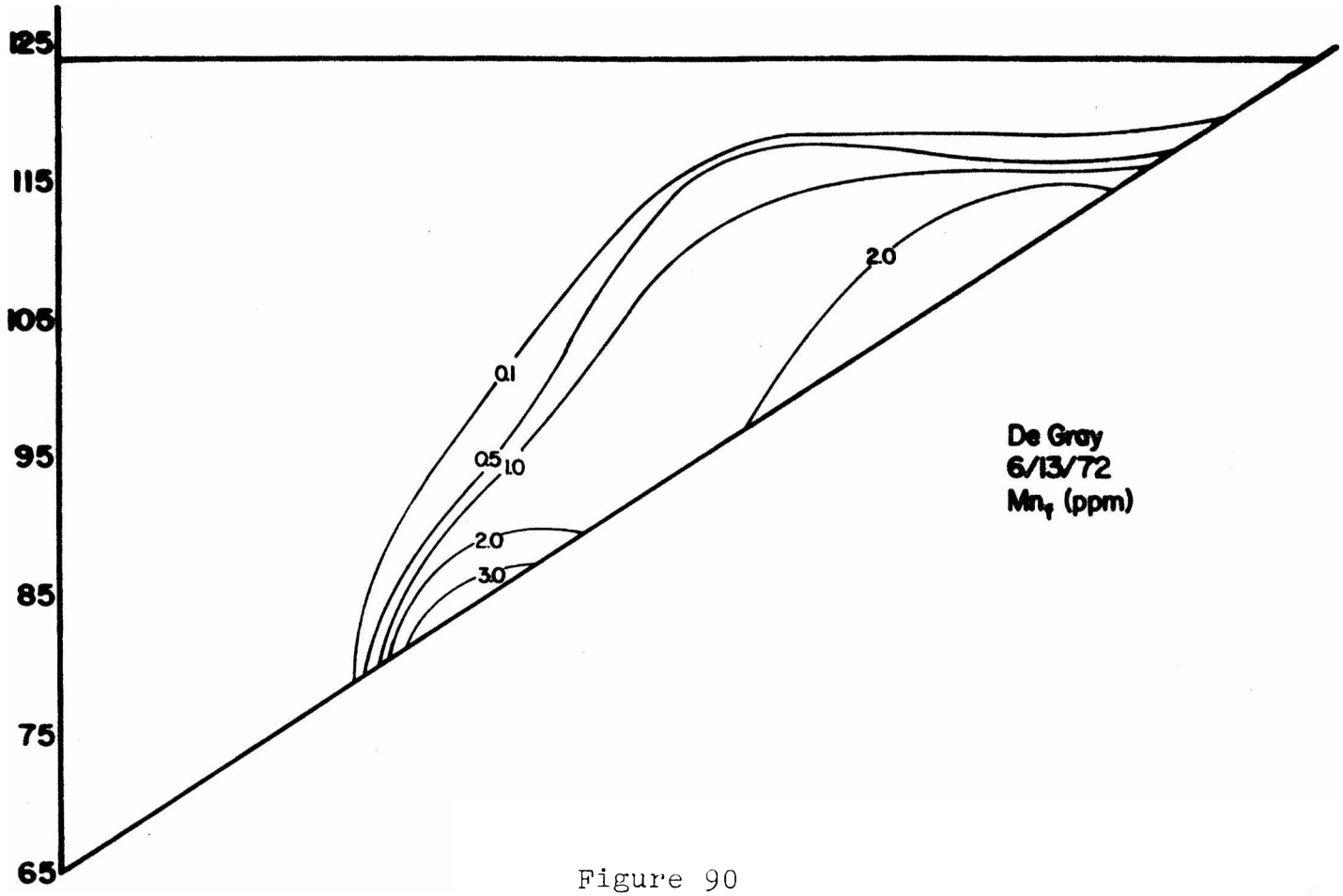

Figure 90

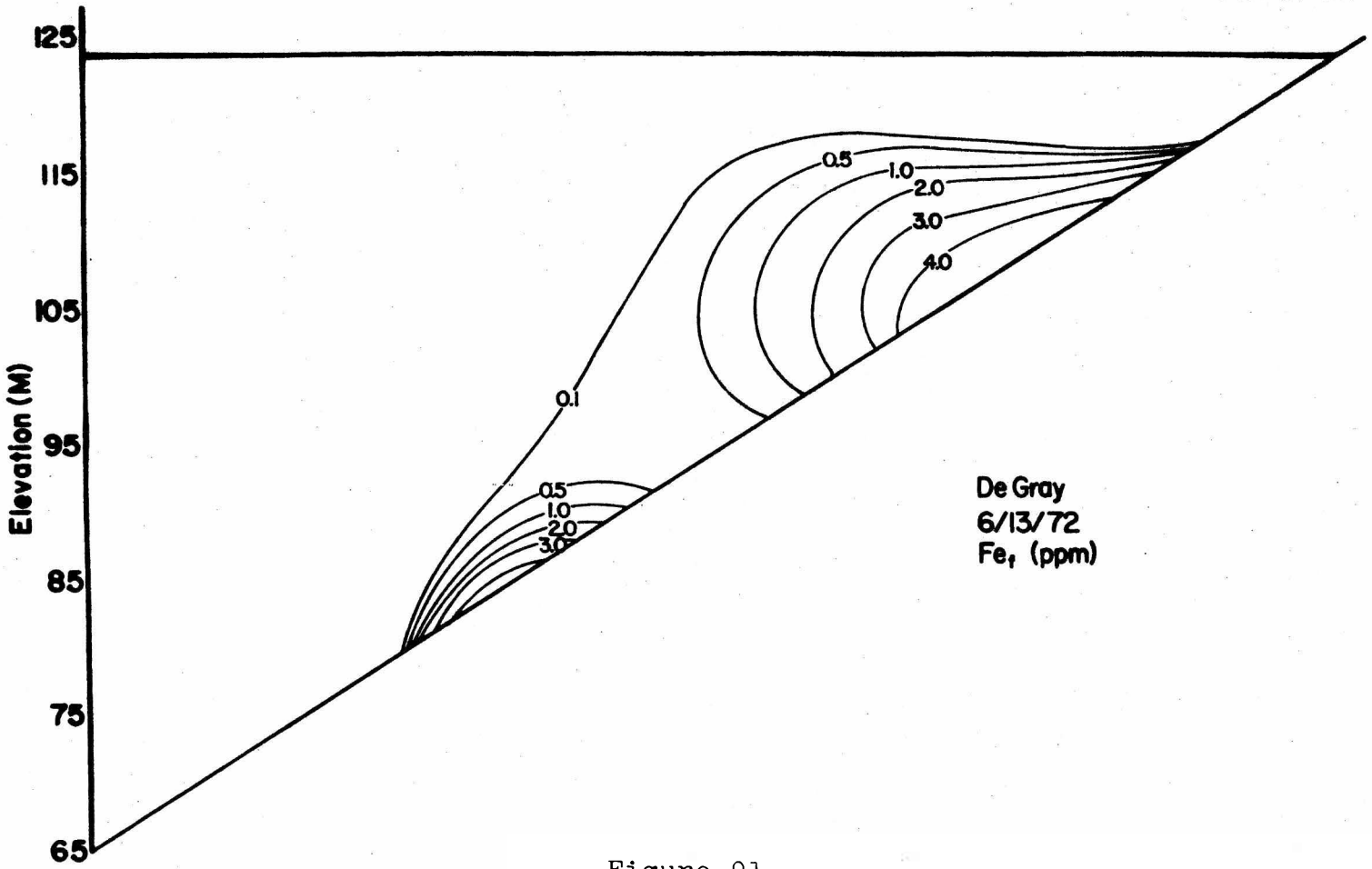
125
115
105
95
85
75
65
Elevation (M)
0.1
0.5
1.0
2.0
3.0
4.0
0.5
1.0
2.0
3.0
De Gray
6/13/72
Fe, (ppm)

Figure 91